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ORIGINAL ARTICLES.

THE CLINICAL USES OF THE PREPARATIONS FROM THE THYROID GLAND, PITUITARY BODY, SUPRARENAL CAPSULES, AND BONE-MARROW.¹

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To cover the ground with reasonable thoroughness I have had to limit myself in two directions. First, I have kept strictly to the title of my paper and studied only the *clinical uses* of these preparations and not the theory of their nature, the modes of their preparation or action, nor the history of their introduction into medicine. Secondly, I have thought it best to say nothing at all of the uses of the preparations of the thyroid gland in myxedema, sporadic and endemic cretinism, and cachexia strumipriva. The usefulness of thyroid extract in these conditions is now so well established that any discussion of it would be tedious. Therefore, in speaking of the thyroid extract I shall confine myself to its uses in conditions other than those just mentioned.

THYROID EXTRACT.

Besides myxedema, cretinism, and the cachexia following thyroid extirpation, there is a long list of diseased conditions in which thyroid extract has been used, the most important of which are: (1) Simple goiter. (2) Exophthalmic goiter, or Graves' disease. (3) Obesity. (4) Psoriasis and other cutaneous diseases, including alopecia. (5) Tetany. (6) Insanity and various psychoses. (7) Retarded development in children. (8) Chlorosis. The thread that binds all these apparently heterogeneous conditions together is the fact that they all are, or may be, associated with myxedema, and when so associated have been cured or ameliorated by the thyroid treatment. Thus, some myxedematous patients are goitrous, many are fat and suffer from various cutaneous disorders; mental troubles are a very frequent symptom, and retarded development not uncommon. Many myxedematous patients get very anemic, and some, especially those whose myxedema is due to removal of the thyroid, show the spasms of tetany. Hence, it has occurred to physicians to use the

thyroid treatment in each of these conditions when occurring without myxedema.

Further, the thyroid preparations have been used in rickets probably from a general sense of its value in diseases of nutrition, and perhaps the same idea may have led to its use in diabetes and gout. It has been used in fibroid tumors of the uterus, and for hypertrophied scars—its marked powers of tissue metamorphosis probably recommending it. Favorable reports of its use in lupus led to its use in phthisis, and, finally, syphilis, cancer, and leprosy, have been experimented on. It is said to be good for piles.

I will take up these various uses of the thyroid extract in what seems to be the order of their importance.

THYROID EXTRACT FOR SIMPLE GOITER.

Relief is sought in these cases either on account of the disfigurement and inconvenience of the tumor, or because of the pressure symptoms which it causes. Without treatment, tracheotomy is sometimes necessary to relieve the distress of breathing.

Out of a total of 322 published cases, 279, or eighty-seven per cent., are set down as improved, and only 43 as not improved (see table). These statistics are large enough to be convincing, I think, of the great value of thyroid extract in simple parenchymatous goiter. There have been, so far as I can ascertain, no wholly unfavorable reports—none where marked improvement has not appeared in a majority of all cases in which any one observer has tried it. Those who have tried the remedy, in large numbers of cases, agree that it is most effective in goiters that are of recent appearance and of moderate size, and especially in those occurring in young people.¹

Failures are mostly in cystic or colloid goiter, and in middle-aged people who have had the tumor a long time. It seems safe to say that every parenchymatous goiter of recent appearance in a young person can be considerably diminished by thyroid feeding. It is uncommon to see the tumor wholly disappear, only about ten per cent. of the cases having so resulted, but often there remain only a few hard nodules not previously felt, which can be easily dissected out.

¹ Read before the Massachusetts State Medical Society, June 9, 1895.

¹ The younger the better. Thomas reports splendid results in sucklings with congenital goiter.

THYROID FEEDING IN GOITER.

TABLE NO. I.

Author.	No. of Cases.	Cured.	Improved.	Not Improved.	Remarks.
Bruns.....	60	14	29	17	Used the raw gland itself. "Thyroidism" in 1 case only. 3 relapsed after treatment omitted. Failures—(a) cystic or colloid goiters; (b) adult patients with tumors of long standing.
Kocher.....	7	0	5	2	The failures were a goiter and a colloid tumor.
Séné.....	1	0	1	0	
Alexjew.....	2	1	1	0	
Epelbaum.....	1	0	1	0	
Ingals & Ohls ¹	50	2	36	11	1 case not heard from. 2 of those not improved were under treatment less than a week. Cystic tumors were not excluded.
Knopfmacher.....	22	(12 ²)	5	5	The 5 obstinate cases were also unaffected by the iodine treatment, by ointment, and internally.
Marie.....	1	0	1	0	Showed diminution in size within 5 days.
Reinhold.....	12	0	12	0	Insane patients—7 lost an average of 4 lbs. weight in 6 weeks. 2 gained weight (3-9 lbs.). No change in mental symptoms.
Angerer.....	78	0	72	6	Those not improved gave up treatment on account of "thyroidism," most lost weight (6 lbs. in 5 weeks'-average), but gained it back later. 2 relapses in 5 and 7 months after omission of treatment. Prefers the raw gland.
Stabel.....	60	4	56	0	26 cases on raw gland did much better than 34 on tablets; no "thyroidism."
Ewald.....	19	0	19	0	Used English tablets and finds them much better than German.
Putnam.....	3	0	?	1	2 not heard from.
Thomas.....	?	?	all	0	"Splendid results." All in young infants.
Hennig.....	2	0	1	1	Using "thyroiodin."
Eschler.....	"many"	"many"	?	?	Does best in young people.
Sanger.....	1	0	1	0	

Some of the cases show distinct diminution in the size of the goiter after four or five days' treatment, and in several the tumor was entirely gone within a month. After from six to ten weeks' treatment the diminution has usually reached its limit, but some continue to improve for a longer period, and occasionally it is six weeks before any improvement begins.

As most of the statistics are very recent, our knowledge as to the permanency of the cures is obviously very limited. Nine months after the cessation of treatment many of the cases have shown no relapse. On the other hand, Bruns finds three-fourths of his sixty cases begin to relapse three months after cessation of treatment. The statements of observers are not sufficiently full on this point in most cases, and we cannot say at present how frequently the marked improvements above recorded are destined to be permanent, and whether, as in myxedema, we must maintain the thyroid treatment through life to prevent relapse. Those cases which disappear most rapidly under thyroid treatment have shown, according to Stabel, the greatest tendency to relapse. Slight loss of weight during the treatment is the rule, averaging five or six pounds in Angerer's 78 cases. Severe toxic symptoms are rare and can be prevented by care (*Vide infra*).

¹ Including cases reported in letters to the author.

² Nearly.

THYROID TREATMENT IN OBESITY.

The vast majority of observers are agreed that most obese persons, and many who are not so, lose weight rapidly during the first week of treatment with thyroid extract, the diet being unrestricted. We can tell to a certain extent what type of obesity is most likely to be benefited. Leichtenstern, Buquin, Kraus, and other observers have noticed that in young, robust, and vigorous, but obese persons, the treatment is not effective. It is especially successful where obesity is associated with pallor, and flabby, doughy tissues, and as such a condition is commoner in women, the remedy more often works well in women than in men. The loss of weight is most rapid during the first week of treatment, but continues more slowly for months in some cases. Among the most striking cases are those of J. J. Putnam, who was the first, so far as I can ascertain, to use thyroid extract in simple obesity. One of his patients lost forty-seven pounds under thyroid treatment. Ratjen reports a loss of fifty-seven pounds in three months' treatment. Rendu's case lost sixty-six pounds in two months with no relapse up to date (one year). A loss of a pound a day for the first week is not at all uncommon.

In most cases this loss of weight represents not simply a loss of fat (and water) from the tissues, but a drain on the lean as well. The excreta show that an increased amount of albuminoid matter is

being burnt up in the body, so that muscle as well as fat is lost. V. Noorden says that thyroid extract is the only known drug that increases the process of oxidation in the body without muscular or glandular exercise. He compares it to the blast from "a pair of bellows rousing the smoldering fire of metabolism to fiercer flames." But as regards the albuminoids of the body, this is just what we want to avoid in our treatment of obesity, and, in fact, it can be avoided if a diet is so arranged that the loss of albuminoids is compensated by an increase in the proteid elements of the diet.

The majority of observers agree that the weight is soon regained after the remedy is left off, unless exercise or careful dieting prevents it. This relapse does not always occur, and is often delayed some weeks, or even months, after the remedy is omitted, but in a larger number of cases the weight

begins to increase again very quickly, and not infrequently reaches its former figure within a month. Cases are recorded where patients have actually gained weight during the use of the remedy, but this is very rare.

At the Congress for Internal Medicine, held at Wiesbaden just two months ago to-day, Ewald sums up a discussion on this topic with the conclusion that we have in thyroid feeding a precious remedy in cases of obesity, and one whose ill effects can all be avoided. He recommends that we should never give this treatment to any patient whom we cannot watch closely, for the dangers inherent in its use are considerable.¹ In some of the cases he says the remedy entirely fails, the tendency of the organism to conserve its fat being very strong. He compares such cases to those of pernicious anemia where the preservation of the fat layer up to death is so striking.

THYROID TREATMENT OF OBESITY.

TABLE NO. II.

Author.	No. of Cases.	Loss of Weight.	Duration Treatment	Not Improved	Relapsed.	Remarks.
Leichtenstern and Wendelstadt	27	3-19 lbs.	4-6 weeks.	2	?	Anemic, flabby cases do best.
Rendu	2	66 lbs. in 1, "marvelous" in the other.	2 months.	0	none so far 1 year.	Used tablets of dried extract.
Dennig	5	6 lbs. av.	10-27 days.	1	1	Some show increase of albumin excretion, others do not.
Buquin	3					
.....	3	9 lbs.; 16 lbs.; 7 lbs.	3 weeks.			
V. Noorden.....	17	"Considerable."	?	?	"Most"	Finds it useless unless supplemented by diet, but helps somewhat where diet alone fails.
Ingals.....	2	5 lbs. in 1.	?	1	?	1 case gained 5 lbs. under treatment.
MacKenzie.....	1	8½ lbs.	1 month.	0	Yes.	Gained back 5 lbs. while still taking thyroid
Smith.....	1	"Considerable."	?	0	?	
Schlesinger.....	1	"Very successful."				Tablets of beef thyroid had no effect.
Jerzykowski.....	10	"Considerable."	?	?	?	Effective only when combined with diet. Used Merck's tablets.
Putnam.....	6	40 lbs. in 1; 47 lbs. in 1.			Yes.	Relapsed when thyroid was omitted. Other cases lost no weight.
Bleibtreu.....	1	6½ lbs.	?	0	?	Lost albuminoids in spite of increased protein diet.
Meltzer.....	1	?	?	0	?	Began to improve in 24 hours.
Buschan.....	1	"much"	?	0	?	
Ratjen.....	1	57 lbs.	3 months.	0	?	
Barron.....	5	1 lost 28 lbs., others less.	6 weeks.	0	?	
Becker.....	2	7 and 10 lbs.	1 week.		Yes.	
Bournville.....	6	4, 5, 6, 8 and 12 lbs.	8-10 weeks	1	Yes.	Idiotic children all relapsed, some during treatment.
Davies.....	1	"Considerable."	?	0	?	In this case diet alone was useless, but with thyroids too, was very efficacious.
Williams.....	7	"Considerable," 36 in 1	?	1	0	Acne rosacea in 2: markedly improved.
Baldwin.....	3	1 lost 40; 1 lost 10; 1 lost several lbs.	?	0	3	Weight regained because active exercise not kept up after stopping thyroid extract
Grawitz.....	2	6 lbs.	1-3 weeks	0	?	Using "thyrojojin."
Hennig.....	24	2 ten lbs. per week.	?	0	?	Using "thyrojojin" 1 lost 20 lbs. in 23 days.
Ewald.....	11	8 ten lbs.	6 weeks.	1	"Most"	Using "thyrojojin."
Eulenburg.....	1	17	?	?	?	
Magnus-Lewy.....	1	8 lbs.				
Total.....	145					

¹ Letter to *Munich. med. Week.*, April 23, 1895.

² The danger signals will be briefly considered later on.

Drs. H. C. Baldwin and Harold Williams of Boston, have been good enough to let me mention the results of their experience in the thyroid treatment of obesity. Dr. Baldwin's three cases showed marked loss of weight, but relapsed because exercise was not kept up after the remedy was omitted. Some of Dr. Williams' seven cases have not relapsed and have been in all respects successful. In two an associated acne rosacea improved much during the treatment.

Out of a total of 145 cases which I have been able to collect, all but 6 got thinner under the treatment, so that, except for the question of relapse, the treatment was successful in over ninety-six per cent. of the recorded cases. How often and for how long relapse can be prevented, either by continuing the thyroid treatment, by exercise, by diet, or by a combination of these measures, we are not yet in a position to know.

THYROID FEEDING IN SKIN DISEASES.

Here the results have been markedly poorer than in goiter and obesity. The remedy has been tried to a limited extent in a variety of diseases affecting the skin but especially in psoriasis. Here, out

of 153 cases, only 62 improved during treatment, and of these only 43 had thyroid treatment without local remedies as well, so that only about one-fourth of the cases can be said to be really improved by the thyroid. Further, as the records of these cases are all very recent, and as very little is said as to the presence or absence of relapses, we may well hesitate to believe that the results are really due to the treatment and not to one of the spontaneous ameliorations so common in the course of the disease. Those most sanguine as to the merits of thyroid extract for psoriasis admit that there are many cases in which it has no effect, and some (about one-sixth) who are made worse by it. Byrom Bramwell thinks it a specific for certain types of the disease, but he has never attempted to point out any means of knowing beforehand whether a given case will be made better or worse by it. Radcliffe Crocker of London, considers it very valuable in the "right cases." Crocker says that it "should never be given during the increasing stage of the disease," as sometimes scores of new spots rapidly develop under it. He finds it "very capricious in its ac-

THYROID TREATMENT OF PSORIASIS.

TABLE III.

Author.	No. of Cases.	Improved.	Not Improved	Worse.	Relapse.	Remarks.
Abraham.....	65	18 (11 had local treatment, too).	16	15	?	In 11 treatment had not continued long enough to judge of its results.
Thibierge.....	11	8	3	0	?	Average loss of weight 12 lbs in 6 weeks. Those who improved had local treatment too.
Crary.....	9	2	7	0	?	Noticed peculiar "meaty" odor to skin.
Busch.....	24	18	6	0	?	11 "cured."
Bramwell.....	6	3	3		0	1 very stubborn case cured in few weeks without local treatment; 2 are well (6 months, no relapse).
Squire.....	2	0	2			
Dill.....	4	3	0	1		1 "cured."
Davies.....	2	2	0	0	?	
Hyde.....	10	0	10			
Eschle.....	2	2	0			Fresh cases in young people.
Brooks.....	5	0	1	4		
Phillips.....	2	0	2			
Putnam.....	1	0	1			
Freese.....	1	1	0	0	?	20 years' standing, resisted all kinds of treatment hitherto. "Cured."
Wilson.....	1	1				Cured—hair reappeared on scalp.
Unna.....	1	0	1			
Auld.....	1	1	0	0	?	Stubborn hitherto. "Cured" in 1 week. 1 tablet daily.
Mossé.....	1	1	0		?	Stubborn case 1 year's standing. Prompt "cure."
Jones.....	1	0	0	1		Glycosuria during treatment.
Tschernogourow.....	1	1	0	0	?	"Cured."
Anderson.....	1	0	1	0	?	
Gordon.....	1	1	0	0	?	
Combe.....	?	Yes.				
Epelbaum.....	1	1	0	0		
Totals.....	154	63	53	29		

tion, failing in one attack after it has succeeded in a previous one. In children and sound young people it is often effectual." Thibierge believes in its utility but thinks it should be reserved for refractory cases where other remedies fail. It is in such cases that the treatment by thyroid feeding has scored its most striking successes. Age and sex seem to make little difference (Abraham), although Eschle thought fresh cases in young persons were more amenable to this treatment.

In eczema, of a total of 22 cases reported, 9 are set down as "cured," 3 as improved, 2 as unimproved, 1 as worse, and in 7 the result is not clearly stated. Out of 7 cases of ichthyosis, only 1 is called "cured," another was "cured but relapsed when treatment stopped," 4 are improved, and 1 unimproved. Of 4 cases of xeroderma, 1 showed improvement; the others none. Two cases of scleroderma are reported; 1 was improved and 1 was "cured." Three cases of acne rosacea gave 2 improved—Dr. Harold Williams' cases—one not improved. Success is mentioned in single cases of adenoma sebaceum, pityriasis rubra, and exfoliative dermatitis, and failure in a case of vitiligo. Four chronic leg ulcers exhibited no improvement. Two cases of alopecia are reported as improved, but MacKenzie claims to have tried it thoroughly and found it useless in this disease. The use of thyroid feeding in lupus seems to have been successful in the hands of Byrom Bramwell. Busch and Abraham reported 12 cases, all more or less improved. In 5 of these, however, local treatment was given at the same time. No complete cures are reported.

THYROID TREATMENT IN PHTHISIS.

This apparent success with cutaneous tuberculosis induced Morin of Neuchatel to try the remedy in pulmonary tuberculosis, and he has been followed by Kraus in Germany, and by T. Smith in England. All of these observers report generally favorable results but nothing very definite or permanent. Morin believes the goiter and tuberculosis are antagonistic. He noted the frequency of atrophied thyroid in phthisis, and out of 71 cases of myxedema found 20 tubercular. Girard of Berne, noted that in the districts where goiters prevail, phthisis is more than twice as common in the non-goitrous as in those with goiters. It is a popular belief in these regions, he says, that goiter and tuberculosis are antagonistic. Morin also reports a phthisical patient who improved markedly after acquiring goiter. In one very tubercular family he found

every member phthisical except those whose thyroid was enlarged.

Kraus did not find that phthisical patients lost any weight under thyroid treatment, in fact, notes a gain in weight in one case, but he found no change in the signs in the lung.

During the past ten days I have been giving thyroid extract to six phthisical patients. No particular change has been noted.

THYROID TREATMENT IN SYPHILIS.

This remedy has also been tried in syphilis. Six favorable cases are reported, 5 of them said to be very severe, while in 11 cases no improvement has been seen.

MISCELLANEOUS USES OF THYROID FEEDING.

(1) The first condition I shall mention under this heading is an interesting case of hypertrophied scar, reported by Dr. J. W. White, in which, during thyroid feeding, a large unsightly mass, resembling keloid, shriveled away so as to leave only a linear scar. Dr. White had previously tried various local treatments with no success. (2) The unsuccessful use of thyroid feeding in cancer needs no further comment. (3) At the Wiesbaden Congress of last April, above-mentioned, where the whole subject of thyroid feeding was discussed, favorable results were reported in a great variety of conditions; for example, in chlorosis, rickets, gout, and diabetes. The cases are too few and the reports too meager for us to come to any conclusion about them. (4) A French observer (Jouin) tried thyroid treatment in 5 cases of fibromyoma of the uterus, and noted marked diminution in the size of the tumors in 2 cases, and diminished hemorrhage in 3.

The fact that in myxedematous children and cretins the thyroid treatment is associated with notable growth in height has led some observers to try its effects in dwarfed children not myxedematous, to see if their development could not be helped. I have collected 10 such cases, 3 in idiotic children, and 6 in whom the lack of development was mainly physical. A considerable increase in height was observed in all the cases, but the mental symptoms were not improved.

This brings me to speak of insanity as treated with thyroid. About 60 cases are on record—25 improved. Out of all who have tried the treatment, Bruce, an English writer, is apparently the only one who feels sanguine as to its use. Twenty-one out of the 25 improved cases are his. He considers it "a valuable addition to the alienist's armamentarium in certain cases," and advises its use in cases of melancholia whose spontaneous

improvement had come to a standstill; in maniacal cases without signs of dementia and in stuporous cases in early stages. He finds that women do better under it than men, an observation parallel to the results in obesity. It is contraindi-

TETANY.

The last use of thyroid feeding, of which I shall speak, is in tetany. Of twelve recorded tetany cases subjected to it, only four showed improvement, but two of these were very ob-

THYROID IN INSANITY.

TABLE IV.

Author.	No. of Cases.	Improved.	Not Improved.	Remarks.
Reinhold	12	0	12	Goitrous cases.
Bruce	30	21	9	14 quite well.
McClaghry	2	1	1	Goitrous cases.
Easterbrook	1	1	0	Several others benefited.
E. P. Elliot	3	0	3	
Clarke	"several" ¹	"several" ¹	?	Stuporous cases.
Scribner	10	0	10	Lost 5-17 lbs. weight.
Totals	60	25	35	

cated in emaciated patients, and those who eat poorly, and in cardiac disease. Bruce's experience related to 30 cases, 21 of which showed improvement, amounting to recovery in 14. Clarke, a Canadian writer, finds like Bruce, good results in cases of stupor—several benefited, one or two recovered, one relapsed.

At the Danvers Asylum and the McLean Hospital for the Insane, the thyroid treatment has been tried to a limited extent without any beneficial effect on the mental symptoms. At the Worcester Insane Asylum, Dr. Scribner used it in 10 chronic cases without any effect except a decided loss of weight, amounting in 4 cases to over fifteen pounds.

In epilepsy one author finds good effects and one bad effects from the treatment.

Although starting without any strong bias against the possible utility of thyroid in exophthalmic goiter, I have not been convinced by the literature that a further trial should be given it. Out of 85 cases published, 22 improved, 40 did not, and 23 were worse. The size of the goiter has diminished in many of these cases, but without corresponding general improvement. The number of those made worse is about equal to those benefited, and three-fourths show no improvement. Nevertheless, some actual cures are recorded in obstinate cases, and there seems a possibility that in a certain type of the disease it may do good. In no other disease, however, does it so often do positive harm. On the whole, there is very little reason for hoping that it will do good in this condition.

stinate and long standing cases, and have shown no relapse in a period of five months. Possibly, here, as in many other conditions, thyroid feeding may help to distinguish different types within each disease, according as they are or are not affected by the thyroid treatment. It

THYROID IN EXOPHTHALMIC GOITER.

TABLE V.

Author.	No. of Cases.	Improved.	Not Improved.	Worse.
Bogrof	14	14	0	
Bergmann	7	0	0	7
Mendel	10	0	10	0
Stabel	10	0	7	3
Leichtenstern	4	0	0	4
V. Jaksch	6	0	6	0
Putnam	6	0	6	0
Brissac	1	0	0	1
Kraus	3	1	1	1
Voisin	2	2	0	0
Schuster	"several" ¹	all	0	0
Senator	"several" ¹	0	all	0
Bécléré	1	0	0	1
Silex	1	1	0	0
Lemcke	1	0	0	1
V. Noorden	1	1	0	0
Lanz	1	1	0	0
Revilliod	1	0	0	1
Ferguson	1	1	0	0
Casselbury	1	1	0	0
Shurly	"few" ¹	0	all	0
Joffroy	1	0	0	1
Ewald	3	0	3	0
MacKenzie	1	0	1	0
Singer	?	0	all	0
Auld	1	0	0	1
Cantu	1	0	0	1
Nasse	1	0	0	1
Totals	85	22	40	23

¹ Counted as 2 in totals.¹ Counted as two cases in total.

may be that there are the thyroïdal and non-thyroidal types of obesity, psoriasis, tetany, insanity, etc. In the case of obesity, we seem to be already in possession of some criteria by which we can tell beforehand whether or not a given case is likely to be benefited. In the other conditions, such criteria are very scanty, but there seems to be some ground for hope that thyroid treatment may enable us to split up several supposed entities of disease, as we have split up jaundice and asthma, and show them to be simply symptomatic of a number of different underlying conditions.

To sum up the impression gained from the study of the literature of thyroid feeding, it seems to be: (1) Of great value in simple parenchymatous goiter, especially in young people. (2) Of considerable value to reduce weight in obesity, especially in the anemic, flabby types, and provided the relapse is prevented by diet and exercise. (3) It seems to deserve a further trial in obstinate cases of psoriasis, sclerodema, and lupus; also in tetany, certain phases of insanity, and retarded development in children. (4) In exophthalmic goiter it rarely does good and often harm. (5) In chlorosis, rickets, diabetes, and tuberculosis, the evidence is not sufficient to warrant inference.

A few words as to the form in which the thyroid is to be given. Many of the most successful recent results in Germany have been with the fresh gland, raw or fried. There is but little doubt that this is superior to the German dried extracts. Whether or not it is superior to English and American extracts, we have no sufficient evidence to show. The fresh gland is very unpalatable, but may be given by the rectum.

Attempts have been made in Germany to extract the active principle of the thyroid gland, and Fraenkel's "Thyreointoxin," and Baumann's "Thyrojodin," are now being experimented with in Germany. The latter preparation is an iodine compound, and considerable success in the use of it was reported by Ewald and others at the Wiesbaden Congress. The dosage is exact, and it is free from some of the unpleasant toxic qualities of the dried preparations of the gland.

I have alluded to some dangers attending the use of thyroid preparations. The resultant bad symptoms are probably of two kinds: (1) the physiological action of an overdose of the gland itself, and (2) ptomain poisoning due to products of decomposition included in the dried preparations of the gland. Their two chains of symp-

toms are often lumped together under the name of "Thyroidism."

"Thyroidism" is first shown by rapid pulse and palpitation; cardiac oppression and angina, even fatal in a few cases, may occur. Anorexia, nausea and vomiting, diarrhea, lassitude, malaise, faintness, vertigo, headache, and pain in back and extremities, are not uncommon; hysterical manifestations and, rarely, aphasia, monoplegia, convulsions, and even coma occur. With some preparations urticaria, erythema, and eczema are produced. An odor to the skin and perspiration is sometimes noted. I have had two patients speak of this.

In those predisposed to diabetes by inheritance a temporary glycosuria may occur,¹ and V. Noorden hopes that we may in the future be enabled to make an early diagnosis of diabetes.

In giving thyroid preparations, the best guide is the pulse. *Any considerable quickening or palpitation should lead us to discontinue the drug until the cardiac action is again normal.* There are no dangers in the use of the drug, provided we begin with small doses, from one to two grains of American extracts, and gradually increase, watching the pulse. It should never be given to a patient who cannot be closely watched.

SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

Since Rollesboue's remarkable Goulstonian lectures on the suprarenal bodies, in which he recommends a trial of the extract of these glands for Addison's disease, a certain number of cases have been reported. I have been able to collect only twenty cases, out of which nine have been considerably improved. The use of the preparation is still in its infancy, and these cases represent trials of watery, alcoholic, and glycerin extracts, as well as of the gland itself, raw or dried, so that it is misleading to lump them all together and judge of the results. The various fluid extracts are evidently very inferior to the gland itself, dry or raw. One case, under the care of Dr. F. C. Shattuck, at the Massachusetts General Hospital, I had an opportunity to observe. Dr. Shattuck felt no doubt of the diagnosis, and no improvement occurred until after the use of the dried extract of suprarenal body. The patient is now, to all appearances, well, and has been so for four months. An absolute diagnosis of Addison's disease is, I believe, impossible without an autopsy, so that a certain amount of doubt is thrown on the apparent benefit derived from this mode of treatment in genuine

¹ V. Jakach (Fourteenth Congress, Wiesbaden) doubts whether the reduction of copper in these cases is always due to sugar.

SUPRARENAL EXTRACT IN ADDISON'S DISEASE.

TABLE VI.

Author.	No. of Cases.	Result.	Remarks.
Parkinson.....	1	Worse.	Died soon after.
Turney.....	1	Worse.	Died soon after.
Ringer and Phear.....	1	Temporarily better.	Died soon after.
Pitres.....	2	Worse.	Subcutaneous use.
Spellman.....	3	2 no effect. 1 greatly better but relapsed.	Using alcoholic extract.
Stockton.....	1	Nearly well.	Bronzing gone.
Osler.....	1	Much better.	No relapse (3 months).
Sansom.....	2	Temporarily much better.	Relapsed and died.
Jones.....	1	"Cured."	
Oliver.....	2	1 "practically well," 1 greatly better.	1 diagnosed by Pye-Smith.
Maragliano.....	7	Good results.	Glycerin extracts.
Shoemaker.....	1	Improved.	
Stewart.....	1	Not better.	
Epelbaum.....	2	Much better.	Fresh raw gland.
Zuco and Foa.....	?	No improvement.	Used watery extract.
Shattuck.....	1	Apparently well.	
Total.....	27		

Addison's disease; but when we have such benefit recorded in cases diagnosed by such clinicians as Pye-Smith, Osler, and F. C. Shattuck, we cannot help feeling hopeful about the treatment, especially as on physiological grounds, there seems to be reason to expect that it would work well.

Experiments with suprarenal extract have shown it to have the property of increasing blood-pressure by stimulation of the vagus and cardiac muscle, and also of contracting the caliber of the periphery arteries. Acting on this suggestion, Bates has employed it as a local astringent and hemostatic in operations on the eye, and also in glaucoma and conjunctivitis. Oliver and Clark have employed it with benefit in a case of diabetes insipidus, and its use has also been praised in three cases of diabetes mellitus, and in hysteria, and neurasthenia, with loss of vasomotor tone, and in certain forms of anemia.

It is evidently a powerful medicinal agent, and severe toxic symptoms have been recorded in connection with its use, but on the whole, there seems to be some reason to feel hopeful about its result. Certainly, it deserves a farther trial in a disease for which no other treatment has hitherto availed anything.

EXTRACT OF PITUITARY BODY IN ACROMEGALIA.

The records of this subject are very scanty. I have been able to collect only nine cases of its use. Five of these appear to be more or less improved. Three of these are reported by Marinesco, an Italian. The headache and other pains improved, the general condition was better, and the extremities smaller. One case was able

to move the hands better and walk with less fatigue than before. One favorable case comes from England, under Bramwell's care, and another from Germany. In these two, thyroid extract has previously been tried without success. In the German case reported by Mendel, the knee-jerk, which had been absent, returned, and the condition of the teeth and gums improved.

Thyroid treatment has also been tried for acromegalia in ten cases, six of which have improved, and four have not. As both the thyroid glands and pituitary body are sometimes found diseased at autopsy in acromegalia, it may be that the simultaneous use of both extracts will be found useful.

BONE-MARROW.

Since ordinary forms of anemia yield readily to treatment by other drugs, it is chiefly in pernicious anemia and leucemia that we have hoped for help from bone-marrow. But I have been unable to find accounts of a single case of undoubted pernicious anemia which has shown any permanent improvement. In the case of Danforth, which attracted so much attention at the time it was reported in October, 1894, there has since been relapse and death, and there is no reason to suppose that the temporary improvement had any connection with the treatment. The cases of Frazer and Bigger both lack a satisfactory blood examination, and their subsequent progress after the first few months is not recorded. The other cases reported as improved (nine in number) are defective, either as to diagnosis or as to the subsequent progress of the case. Temporary improve-

ments are so common in pernicious anemia with any treatment, as well as without any, that no case can be called cured unless the improvement has persisted at least two years (Cabot). There are no records of improvement in leucemia and and four not improved.

In secondary anemia and chlorosis we have a considerable number of favorable reports. Fifteen cases of chlorosis and chlor-anemia, are all said to have improved, and in two of these, Bland's pills are said to have had no effect.

Seventeen cases of secondary anemia, including four of rickets, are also recorded as improved. But these anemias are easy to cure, as a rule, and as marrow contains iron, it is not remarkable that improvement was noticed.

Two cases of anemia infantum, pseudo-leucemia, are reported by Combe, a French observer, as cured by bone-marrow, but there is reason to doubt the diagnosis.

On the whole, there seems to me to be less reason to expect good results from the use of bone-marrow than from any of the other animal extracts I have mentioned.

CONCLUSIONS.

1. Thyroid extract is certainly valuable.
2. Suprarenal extract we have reason to hope will be proved so.
3. Pituitary extract we cannot judge of as yet.
4. Bone-marrow is in all probability useless.

THE IMPORTANCE OF EARLY DIAGNOSIS AND TREATMENT OF INFLAMMATION OF THE MIDDLE EAR.¹

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It has been said that "an otitis externa any one could cure, but an otitis media no one could cure." How lamentably true this may be after an otitis has become chronic! But it need not be so if vigorous treatment is energetically carried out at the inception of the disease. Lack of recognition of the importance of instituting early treatment of an otitis, is in no small degree responsible for this pessimistic aphorism. How often has it been observed that when the nurse or mother calls the attention of the physician to an otorrhea, the latter would shrug his shoulders and with a reassuring smile nonchalantly say, "Oh, that does not signify, it will take care of itself,

just wash out the ear with a little warm water and borax and it will soon be all right."

Again, that ancient fetish, dentition, will be pressed into service and made to play the rôle of scapegoat to palliate the unpardonable carelessness of the attending physician, who explains that the otitis is a relief to the child while teething, with which it is dangerous to interfere.

I most earnestly deprecate and protest against such a *laissez faire* policy, because such lax methods of treatment tend to confirm the opprobrium formulated in the opening sentence of this paper. The large number of people with total or even partial impairment of hearing impresses upon us the importance of early treatment in these cases.

It is a matter of observation that the deficiency in hearing is not the only baneful result of a neglected otitis, but that this loss of the sense of audition is accompanied, in the majority of instances, with an arrest of mental development, or at least a curtailment of mental capacity. The emotional side of the patient's nature also suffers a change, making him morose and suspicious, bringing out the ignoble traits of character, often making the victim a misanthrope, and sometimes a degenerate with criminal tendencies, in consequence of being, through his affliction, denied the advantages of the beneficent social influences and left to his solitary brooding. Though very much has been accomplished in late years in the amelioration of the condition of these unfortunate ones, the facts just stated will be admitted by all.

This demonstrates how important it is to begin treatment early in this class of cases, while from a politico-economic standpoint it is no less important to diminish the number, or, at least, to prevent additions to the number of degenerates and dependents who may become a public charge.

I was present recently at a necropsy held on a child in whom an *otitis media purulenta chronica* had existed for some time. My observations then prompted me to prepare this article. Brain symptoms had developed indicating abscess in that organ, and the skull had been trephined. The autopsy revealed an extension of the disease to the meninges and cerebral sinus, with suppurative thrombotic foci scattered through these parts. I have met with a number of such cases of extension of the inflammation and of the suppurative process to the cerebrum, all resulting fatally.

The frequency of otitis as a complication or sequel to so many of the prevalent diseases should make us conscious of the importance of early care, but, as in so many other things, this very frequency

¹ Read at the meeting of the Northwestern Medical and Surgical Society of New York City, April 22, 1896.

has bred the contempt of familiarity, and the otitis is apt to go untreated.

During the recent epidemic of measles in this city, from October, 1895, to the present writing, many hundred cases of the disease have been treated by me. Of this large number about seventy-five per cent. developed an otitis.

Treatment was inaugurated with the very first appearance of ear symptoms, and I am happy to say that no case was left uncured.

I have also observed, during the past winter, that an otitis complicated, or rather followed, many cases of simple inflammatory diphtheria.

La grippe has been very prevalent among children in my practice during the same period, and a very large number of those attacked have also suffered from otitic disorders. I recall a number of families among whom two or three children presented ear symptoms. In these cases of diphtheria and influenza treatment was also commenced as soon as symptoms of ear trouble were observed. Sometimes in cases of pneumonia in children, when the case is apparently doing well, and improving, there is a sudden change for the worse, a rapid increase in the fever, accompanied by much restlessness and often delirium; examination of the chest does not reveal any exacerbation of the disease, but in all probability an otitis has started up, explaining the violence of the symptoms. In pneumonia of the apex in children this is apt to occur. If such a complication is recognized, early treatment is of great importance. Meningitis, both cerebral, and, more particularly, cerebrospinal, is in very many cases accompanied by an otitis, and these cases are the ones in which treatment, even if begun early, is least efficient.

By the early treatment of an otitis complicating the diseases just enumerated I have saved many from total or partial deafness, which demonstrates that this early treatment is most essential to secure that result before much destruction of tissue shall have taken place. In fact, I hold that the case is not treated in its entirety unless close attention is given to the complicating otitis.

What has been said suggests that it may be *apropos* to treat of the therapeutic measures employed in these cases of otitis. Before considering the treatment to be directly applied to the affection of the ear it will be wise and necessary to pay attention to the state of the mucous membranes of the nasal and nasopharyngeal cavities. It is now conceded by old observers that a great number of cases of otitic disease have their *fons et origo* in a diseased condition of those parts.

The inflammatory and catarrhal condition which may exist in the nasal and nasopharyngeal tract will naturally demand treatment in order to benefit the difficulty in the auditory canal.

With this general statement, without particularizing the method or kind of treatment to be employed in the affections of the upper air-tract, I shall dismiss its consideration, as it does not fall strictly within the lines of this paper. Of the treatment of the otitis I shall speak a little more fully. At the outset of the attack, if much pain be present, I order an instillation in the ear of from three to four drops of a watery solution of muriate of cocain of five to ten per cent. strength, as frequently as may be required to allay the pain. The solution should be warmed by placing the bottle containing it in warm water before it is dropped in the canal. In this connection I would enter my protest against the use of oily liquids in the ear, for, in my opinion, they are surgically unclean, offering a nidus for the culture of germs and the accumulation of filth. Nor do I approve of stuffing cotton in the ears, except when there is exposure to a direct current of air, and then it must not be pushed into the canal, but fitted in to conform with the contour of the auricle, in short, laid with the rim of the auricle *covering* the aperture of the auditory canal and not entering its lumen. Warm effusions and vapors I also employ to allay pain. Relays of small bags filled with poppy-heads or camomile flowers heated have also been used with satisfaction. Sometimes irrigation with warm alkaline watery solutions will give relief. If the case be quite severe counter-irritation, particularly in the form of sinapisms to the tragus and mastoid process, is of value. If the inflammation be of a higher grade, leeches may be employed to the mastoid process and tragus, care being taken that the leech does not make its way into the ear, which can be avoided by plugging the latter while the creature is engaged in abstracting the blood.

If the drum membrane be very tense and highly congested then a paracentesis is indicated for the relief of the symptoms.

If an otorrhea, serous or purulent, shall have followed, it has been treated as follows: If it be serous, then a simple warm astringent solution containing sulphate of zinc, or boracic acid, or the like, is employed to irrigate the canal. If the discharge be purulent, from eight to ten drops of the peroxid of hydrogen are dropped into the ear, which is to be flushed out with as much warm water as may be necessary until the outflow returns clear. These irrigations are re-

peated as often as the discharge reaccumulates. A fountain syringe is recommended, but the nurse is warned not to place it at too high an elevation lest the force of the current be too strong, and thus become harmful. After irrigation the canal is gently wiped dry with absorbent cotton until no vestige of moisture remains. Thereupon two or three drops of an alcoholic solution of boracic acid of the strength of from five to ten grains to the half-ounce, are instilled in the ear, warmed in the manner already spoken of. These drops are used whether the discharge be serous or purulent in character. The patient may complain that these boracic-acid drops smart; if not too severe that is of no consequence, in fact, I hold that it is a good indication, for it means that it is stimulating the healing process. Occasionally blood will flow from the ear when the alcoholic boracic-acid solution is used. In this event the stimulation is too active. Under such circumstances, or when the smarting is very painful, a reduction in the strength of the solution is indicated.

If the discharge from the ear is very persistent and resists this treatment, I order irrigation of the canal with a solution of nitrate of silver of from five to ten grains to the ounce, of which solution from one dram to half an ounce is to be added to a pint of warm water. I have frequently seen one irrigation control an otorrhea which had persisted for weeks, and it will be seldom necessary to continue the use of the nitrate of silver solution long.

These cases of otorrhea are sometimes apt to be long drawn out and well calculated to try the patience of both physician and nurse. The physician should encourage the nurse or mother to persevere in the treatment, assuring her that in the end success will follow her efforts, and that if she discontinued the treatment the disease would certainly not get well, but would, in all probability, eventuate in partial or total deafness.

I shall speak of the practice of insufflation of powders, sometimes employed in the treatment of this affection, only to condemn it. In my experience the powder readily commingles with the discharges, forming a hard caked mass, which in its turn becomes a source of irritation and acts prejudicially, both mechanically and chemically interfering with the surgical cleanliness of the parts, often increasing the pain and giving much trouble afterward in its disintegration.

If the patient exhibit any constitutional taint, as strumous, syphilitic, tubercular, or rachitic, the treatment approved of in such cases must be brought into play to reinforce the topical therapeutics.

THE CAUSATION AND THERAPEUTICS OF NERVOUS DISEASES.¹

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THE medical mind has been recently directed toward the presence and excess of uric acid in the excretions of persons suffering from various forms of nervous troubles, and some French investigators go so far as to state that nervous disease and uric-acid diathesis are one and the same thing. This is based largely upon the investigations and statements of Haig and Bouchard. I believe, however, that the position assumed by Herter and Horbaczewski is correct, and that uric acid, largely derived from nuclein, is the detritus of tissue-waste and a resultant of nerve-functioning, and that the presence of uric acid is an indication and a manifestation of nutritive and digestive disturbance.

We find many cases of nervous trouble, especially those of a functional nature, associated with large quantities of uric acid in the excreta. Many interesting facts, such as the injection of the blood of an animal which has been very much fatigued into one that is rested, the resting animal showing signs of fatigue, demonstrate the effects of these effete products. Many waste products of an intricate nature are produced and thrown off into the circulating medium during the expenditure of force by the organism, and these must be carried off through the channels of elimination to prevent the danger of auto-intoxication. We must get rid of the waste products of nutrition if we would utilize the beneficial and assimilative properties of the hemic pabulum. A person's system containing effete material resembles a city whose vast system of streets has remained uncleaned for some time, with ashes and garbage in the roadway and orange and banana peels on the sidewalk. The physician should be the street-cleaning department, the board of health, with its disinfectants, and the head of a police inspection system that will prevent a reaccumulation. When this interesting condition is presented for our consideration, what can be deduced from it for therapeutic purposes? Elimination must precede nutritional treatment, and the careful and proper regulation of food, or, for a while, its restriction in very narrow limits, together with the drinking of large quantities of water—hot, cold, plain, distilled, alkaline, or mildly laxative, as the

¹ Read before the Kentucky State Medical Society.

case may require, will greatly assist toward recovery.

Hodge found, after excessive functioning of a nerve-cell, a diminution in the size of the cell, a lessened power to absorb staining reagents (showing imperfect assimilation and nutrition), and later vacuolation, as the substance of the cell is used. The nucleus then becomes jagged and irregular in outline. After a while it is impossible for the cell to send out impulses, and it requires a period of rest for recuperation and a storing of energy. Vas and Mann, quoted by Starr, also found that when activity reaches the point of fatigue, a shriveling-up occurs, changes go on in the chromatin, which is used up so that the fatigued cell does not absorb the staining reagents. A neurasthenic is frequently weakened by hereditary entailment, his nerve-centers poorly constructed, or his vascular supply just sufficient to maintain him during health at a moderate pressure while at work. When he begins to increase this pressure, we find that the cell begins to suffer from imperfect nutrition. With this come defective elimination and irritation, resulting in the production of various forms of headache, vertigo, inability to work and concentrate the mind, great irritability, and general malaise. In this age, every energy is directed toward an increase of wealth; and with the night, instead of rest and recuperation, the struggle to obtain social position goes on apace. I often wonder what the next generation will be, and how they will stand the strain to which their fathers and mothers have succumbed. There are a large number of men and women who are living absolutely on the brink of nervous bankruptcy, who have no reserve nerve-force in case of some sudden and exhaustive demand upon the system. That most beautiful mechanism, which in health regulates the caliber of the blood-vessels—the vasomotor system—becomes unstable, and the sufferers become victims of manifestations which are, in health the result of natural emotional causes. Pain (and worry, anxiety, and tribulation are simply modifications of pain) is accompanied by vasomotor change; and those of you who have had to do with the neurasthenic, know that the hot flash, the sudden flush, the fulness of the head, the excessive sweating, and variations in the renal secretions are merely manifestations of this vasomotor instability.

And this, again, is not a condition favorable to the elimination of those effete materials that are in themselves toxic and irritating to the nervous system.

How can a happy result be best brought about?

We have to consider (1) elimination, (2) unstable and defective nerve-force, (3) nutritional disturbances, (4) irregular or unstable vasomotor supply. It requires a combination of methods that, alas! the pharmacopœia does not offer; and while medicinal agents are required, nay, are of benefit, still I do not believe that they are capable alone of curing any case of this character. Massage is of advantage in certain well-selected cases, but I believe its range is limited and its results to be obtained only by the most careful regulation of its force and duration. As a rule, too much is given, both in quantity and in force. Electrotherapeutics offers a better field, and in galvanic, faradic, and static currents we find that, by selecting cases, excellent results may be obtained. In my opinion, hydrotherapy is by far the most satisfactory, pliable, and useful remedy that the medical profession possesses.

Rest is frequently prescribed for these cases, and just as frequently as it is, it fails. The reason for this is apparent. The exhausted nerve-cells have not sufficient inherent recuperative power to utilize what pabulum is brought to them. It is this non-attention to the eliminative process that robs rest of many of its advantages. I have found rest beneficial at the end of a course of treatment, when the vitiated nerve-elements have been restored to their normal condition, and the patient is in a position, as it were, to "clinch" the advantages gained by treatment. In these cases sleep is of signal benefit, particularly that which is obtained through the hypnotic influence of hydrotherapy. Medicinally, nervin and hematic tonics are indicated, and strychnia, quinia, iron, arsenic, and zinc head the list. If much digestive trouble exists, stomach-washing, the mineral acids, and gentle laxatives are indicated.

As time goes by, the belief grows in force, and is strengthened by experimental and clinical knowledge, that underlying epilepsy is an auto-infection, arising from the stomach and intestinal tract, coupled with imperfect or defective elimination. Careful regulation of the diet and strengthening of the vasomotor system is the one way by which at least one-third of the cases of this terrible disease may be combated.

I have a case just now in which this treatment is beautifully exemplified. Formerly under heavy doses of bromid the attacks were recurring, and the patient was reaching a condition of despair. Under a carefully regulated diet and two weeks of careful observance of her case, I was able to prevent the recurrence of the attacks, which were somewhat periodical, by keeping the intestinal

tract well cleaned out and disinfected, and utilizing such hydrotherapeutic methods as insured active and well-distributed blood-supply. In the Flechig treatment in those chronic, depraved, and most trying of cases, we have a system of treatment which, I believe, is the best that can be offered to these patients. I have found that during the primary stage, or the one during which opium is used, that much of its evil effects, soporific, depressing, and infective (from constipation), can be overcome by using eliminative measures, in the shape of large quantities of water internally, and the douches in their various modifications, externally. In the second stage, or that during which bromid is used, a cup of black coffee in the morning (only), the use of a hot-air bath for five minutes, followed by a rain bath and a good rubbing, will entirely remove the languid and depressed feeling and prevent the acne from appearing.

Where a headache has lasted for a long time, we should certainly examine the renal secretion, as in certain cases I have found unquestioned evidence of incipient or actual Bright's disease. Many headaches are lithemic in origin. Diet and elimination form the keynote to the treatment. I have seen cases of headache lasting from twenty to twenty-two years, and due unquestionably to meningeal thickening, relieved by the systematic application of static electricity and hydrotherapy. I have one patient, who, eighteen years ago, had an attack of meningitis of the convexity, and who has ever since suffered from intense headaches.

There is no question in my mind that this case, for instance, had in and around the meningeal thickening considerable vasomotor disturbance, which, under overwork and emotional strain, was evidenced by the increased throbbing, fulness in the head, feeling of tension, and increased pain. He improved from the first, under hydrotherapy.

A tolerant nerve-cell is a nerve-cell that is well fed, just as a tolerant, amiable, "happy-go-lucky sort of a fellow" is one that is well fed and moderately obese. This is a very important factor in the prognosis of some cases that are usually pronounced incurable, from the simple fact that while the meningitis is not cured, taking my case as an example, still we can frequently establish toleration and obtain what, to the patient, is a true cure. To us it may be symptomatic, but to him it is a verity.

The importance of acute infectious diseases as the origin of many nervous troubles, functional and organic, cannot be overestimated. For this reason they deserve careful consideration, especi-

ally diphtheria, grippe, scarlatina, and those diseases that are accompanied by the pyogenic micro-organisms. My records show large numbers who directly trace their neural breakdown to that scourge, the grippe, while the paretics and ataxics will nearly always be found to have some vascular derangement, to which we can reasonably lay the cause of the disease. Weigert holds that the process which we term sclerosis in the nervous system is merely a manufacture by nature of a supporting substance within the brain or cord, to take the place of an atrophied nerve-cell or fiber. His order of causal factors is (1) overwork, (2) exhaustion, (3) atrophy of the neurons, continued for a time and then followed by a growth of connective tissue in the form of sclerosis, limited to a functional tract. It seems to be a conservative process on the part of nature to increase the supporting network as the cellular substance shrinks, and if this be true, and it is the most rational of all explanations of these scleroses, then the statement that these diseases in their primary stages are curable holds good. The writer made this statement in an article published about two years ago, and while that statement was based purely on clinical experience, he now has the statement of one of the greatest living pathologists to fortify him in the position he assumed.

CLINICAL MEMORANDUM.

A CASE OF POISONING BY SCOPOLAMIN.

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A FEW years ago scopolamin in the form of the hydrobromid and hydrochlorid was introduced into ophthalmic practice as a mydriatic. Its action is very energetic and of brief duration, and for a while it did not seem improbable that it might supersede other mydriatics, particularly for the purpose of determining errors of refraction. Observations recorded by a number of competent investigators show that after the instillation into the conjunctival sac of from one to five drops of a one-fifth of one per cent. solution of either of these salts of scopolamin a maximum dilatation of the pupil is obtained in from ten to sixty minutes, while paralysis of the ciliary muscle proceeds *pari passu* with the pupillary enlargement, and the eye is then ready for examination. This effect gradually passes away, and has totally disappeared at the end of five or eight days.

If the action of scopolamin upon the general system could be eliminated no better mydriatic for refraction work could be desired, but unfortunately it not infrequently produces toxic symptoms of various degrees of severity. No fatal result has, I think, yet been reported.

According to the observations made by Dr. Smith, an effect upon the heart usually becomes manifest in from

five to ten minutes after the instillation of a single drop of a one-fifth of a one per cent. solution, the pulse becoming soft and compressible, while the rate is usually lessened, sometimes to a marked degree, but is occasionally increased in rapidity or becomes irregular.

A number of cases of poisoning have been reported, in which dryness of the throat, muscular weakness, dizziness, nausea, restlessness or sleepiness, a weak and rapid pulse, and sometimes a flushed face, have been the prominent symptoms, but in none of these did the symptoms as reported appear as grave as in a case which occurred in my evening clinic at the Manhattan Eye and Ear Hospital while under the care of Dr. Kendall in August, 1895. It is for this reason that I feel impelled to place the following case on record:

A young laboring man, who had been treated for a considerable time for a mild form of trachoma, was found to be astigmatic, and it was decided to be advisable to examine him under the influence of a mydriatic. Scopolamin was chosen, and four instillations of one drop of a one-fifth of a one per cent. solution were made in each eye at intervals of ten minutes, commencing at 8 P.M. Fifteen minutes after the last instillation, a little over an hour after the first, the patient complained of dizziness, and was obliged to lie down. This was followed by dryness of the throat, nausea and attempts to vomit, flushing of the face, decrease in the strength and increase in the rapidity of the pulse, symptoms which increased with alarming rapidity for half an hour, and reached their culmination in about two hours. At the end of half an hour the pulse was over 160 per minute and very weak, the face was growing darker until it became mildly cyanotic, the patient was unconscious and wildly delirious. The muscles of the extremities were frequently and strongly convulsed. When at the worst it took the strength of several men to hold him, and some doubt was expressed by the gentlemen gathered about him whether his struggles were the result of the active delirium which was present or to spasmodic contractions of the muscles from the irritation of the drug. The pharyngeal muscles appeared to be in a state of paresis.

These symptoms began to abate in about two hours under energetic treatment with morphin and whisky, and the improvement progressed so rapidly that the patient was able to leave the hospital and walk home at 6 A.M., ten hours after the first drop was instilled. Nausea and dizziness persisted for a day longer. The recovery from the mydriasis was in the usual time.

It should not be inferred from such a history as this that scopolamin is too dangerous a drug to use, but it should be understood that it is too dangerous a drug to use without proper care and precaution. Certain individuals are without doubt more susceptible to its influence than others and the rapidity of its action suggests a way in which it may be possible to avoid giving an overdose. The observations in regard to its effect on the ciliary muscle show that the time necessary for complete paralysis varies from ten to sixty minutes, and that the quantity of solution of the usual strength required to produce this effect is from one to five drops, hence it is wise to test

the accommodation before the second and all succeeding instillations to avoid the unnecessary use of the drug after the ciliary paralysis is complete. Another practical precautionary measure is to occlude the tear-ducts by means of pressure by the patient's finger as soon as a drop has been instilled into the conjunctival sac. This prevents the passage of the solution through the lacrimal passages into the nose and its absorption through the mucous membrane. When these two precautions are observed the danger of poisoning is reduced to a minimum.

MEDICAL PROGRESS.

A New Method of Entero-anastomosis.—SOULIGOUX (*Gazette heb. de Méd. et Chir.*, July 23, 1896) has devised a new method of intestinal anastomosis, which consists in suturing two loops of gut without opening them. With a strong clamp he pinches, in a longitudinal direction, the free border of the two intestinal loops, and then stitches them together along one margin of the compressed areas. These areas are then touched with caustic potash, and the suture completed around them. The cauterized portions of the gut necrose, and fall into the lumen of the intestine; and communication is established. In animals, this takes about forty-eight hours. The operation has been performed upon man several times with success.

Chaput has performed a similar operation, using a Paquelin cautery in place of caustic potash. If the stomach enters into the anastomosis, he first removes the muscular coat of the portion involved. Retention of feces is a contraindication. The chief advantage of the operation is the rapidity with which it may be performed.

The Treatment of Ileus.—As a result of his investigations, NAUNYN (*Sep.-abdr. d. Mitteil. aus d. Grenzgebiet. d. Med. u. Chir.*, 1 Bd., 1896) gives relatively exact rules for the treatment of ileus, as follows:

1. The prognosis of the operative treatment of ileus is most favorable on the first and second day of its existence; on the third day it is markedly worse.
2. The best results (seventy-two per cent. of recoveries) are obtained in those cases in which obstruction is due to a rupture, not including cases of strangulated hernia.
3. In primary peritonitis, this condition and not the resulting ileus, must determine the operation.
4. (a) In chronic intestinal stenosis, the necessity for an immediate operation does not often arise. (b) The seat of obstruction can usually be made out exactly if it is located in the duodenum, descending colon, sigmoid flexure, or rectum; otherwise it can only be guessed at. (c) Strangulation can often be diagnosed, and demands an immediate operation.
5. In three classes of ileus an exact diagnosis is possible. (a) Ileus from foreign bodies, e.g., gall-stones; (b) valvulus of the sigmoid flexure; (c) intussusception.

Of treatment other than surgical, Naunyn says:

- (1) Avoid cathartics. (2) Far better is the employment of large enemata of water, or injections of oil, five to sixteen ounces. Injections of air are less serviceable. (3)

Opiates should not be given in large doses. (4) Washing out the stomach is advisable whenever there is fecal vomiting, or the stomach is overfull. (5) Food and drink should be reduced to the minimum. (6) Puncture of distended intestinal coils is of doubtful value.

Etiology of Serous Pleuritic Effusion.—In the *Zeitschrift f. klinische Medizin*, Bd. 29, H. 5 and 6, the cause and nature of serous effusions in the pleural cavity are thoroughly discussed. The author of the article, ASCHOFF, placed before himself three questions:

1. Is every idiopathic pleurisy, *i.e.*, a serous pleuritis without known cause, tubercular in its nature?
2. Is there such a thing as an acute isolated rheumatic pleurisy, which is to be looked upon as equivalent to a preceding acute attack of rheumatic arthritis?
3. Do serous pleuritic effusions ever contain pyogenic organisms without later becoming purulent?

Bacteriological examinations were made of two hundred serous exudates, with the following results:

Serous effusions are nearly always free from pus-producing microorganisms. If the latter are present, the exudate will become purulent, except possibly in exudates containing pneumococci. Purulent pleuritic effusions sometimes heal completely without operation.

The occurrence of isolated rheumatic pleuritis is questionable—at least it must be very rare. The pleuritic effusions occurring in rheumatism are almost invariably the result of a cardiac lesion. No special benefit has been observed by the administration of salicylic acid.

The so-called idiopathic effusions are almost always tubercular. They may, however, disappear perfectly.

Cholecysto-gastrostomy.—TERRIER (*Gazette Hebdom. de Méd. et de Chir.*, July 16, 1896) reports a case in which, upon opening the abdomen for obstruction in the gall-duct, due to cancer of the pancreas, he performed the unusual operation of forming an anastomosis between the gall-bladder and the stomach, which was more readily accessible than the intestine. Recovery followed the operation, and there was no disturbance due to the outpouring of bile in the stomach. The patient died some months later of disseminated carcinoma, and upon autopsy, the anastomotic opening was found to be ample. Only two other cholecysto-gastrostomies have been performed.

Elimination of Microorganisms by Glands.—BIEDL and KRAUS (*Centralbl. f. Inner. Med.*, July 18, 1896). By a series of experiments upon dogs, the authors found that bacteria injected into the veins are eliminated by the kidneys and liver, but not by the submaxillary salivary gland. In one instance the bile which, before the injection, was sterile in thirteen minutes, contained the injected staphylococci. The saliva remained sterile.

The experiments, besides establishing the fact that normal blood-vessels may be traversed by microorganisms, also show the character of the liver as an eliminator of germs from the blood.

Results of Five Hundred Vaginal Hysterectomies.—JACOBS (*Centralbl. f. Gynäkol.*, No. 29, 1896) finds that the mortality of five hundred hysterectomies for various causes

is only 3.4 per cent. Among the cases are forty-nine of carcinoma uteri without a single death. Two of the deaths were from intestinal obstruction, brought about by adhesions of the intestine so low down in the vaginal region that the author thinks they might have been avoided by vaginal tamponade. Practical directions for the operation are given: Short clamps hold better than long ones. For the first part a thermocautery is preferable to the knife as saving time and blood.

When the extirpation is complete, Jacobs ties off the clamps on the broad ligament, stitches the peritoneum together, and thereby renders the patient more comfortable, and avoids danger of intestinal adhesions and herniæ in the vagina. In inflammatory cases, drainage of the peritoneal cavity is necessary, gauze being employed.

Valvular Rupture Following Traumatism.—DREYFUS (*Gazette hebdom. de Méd. et de Chir.*, June 7, 1896) has found that blows upon the chest, or falls, or sudden violent efforts, may produce rupture of any of the cardiac valves, more often of the aortic or mitral ones. The accident is marked by the signs of an acute insufficiency, and the diagnosis lies between rupture of the aortic or cardiac valves, angina pectoris, and pseudo-angina pectoris.

The prognosis is grave, depending upon the extent of the rupture and the condition of the myocardium. Possible complications are secondary infections, infective endocarditis, rupture of the septum, aneurism, and embolism. The medico-legal point is brought out that a blow on the chest may kill a person without external evidence of the violence, and that an examination of the cardiac chambers may be necessary to show the cause of death to be rupture of some of the valves.

THERAPEUTIC NOTES.

The Successful Treatment of Hay-fever.—DR. SETH SCOTT BISHOP (*The Laryngoscope*, 1896, No. 1, p. 21) considers that the uric-acid hypothesis explains the symptoms. In addition to local treatment, meats, sweets, wines, and beer, should be reduced as much as is possible, and the diet limited to fruits, vegetables, milk, and fats. The treatment of the lithemí is substantially based upon Haig's work, and consists of salicylate, salicin, and lithium. Tablets, each containing morphin $\frac{1}{15}$, atropin $\frac{1}{100}$, and caffein $\frac{1}{2}$ grain, are efficacious in checking the sneezing, watery discharge, and stenosis.

Painless Extraction of Teeth.—SCHLEICH'S (*Therap. Monatsch.*, May, 1896, p. 269) cocaine solution, employed to produce infiltration anæsthesia before extraction of a tooth, is as follows:

R	Hydrochlorate of cocaine	. . .	0.2 grm.
	Hydrochlorate of morphin	. . .	0.025 "
	Sterilized chlorid of sodium	. . .	0.2 "
	Antipyrin	. . .	2. "
	Guaiacol	. . .	2 drops
	Sterile distilled water, q. s., or	. . .	100 grm.

Anæsthesia, produced by injecting this fluid, is said to continue about half an hour.

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SATURDAY, SEPTEMBER 12, 1896.

THE PRISON LABOR QUESTION.

ABOUT a year ago the NEWS¹ discussed several aspects of the section of the New York State constitution which prohibited the employment of prisoners at productive labor. The evils of such legislation were pointed out, not only from an economic, but also from an ethical point of view. Among other things, it was shown that the burden of increased taxation, resulting from the necessity to make good the deficit consequent upon the withdrawal of such labor, would eventually fall upon the community, and with especial weight upon those least able to bear it, and whose own wages would not be increased by reason of the new legislation. This position is amply sustained by the annual report of the Brooklyn Penitentiary, recently issued, from which it appears that during the year ending July 31st, the net earnings and receipts of the penitentiary fell off from \$32,754.33 to \$7,981.36, although the reform had been in operation for but a few months. As the running expenses of the Brooklyn Penitentiary are upward of \$140,000 per annum, it will be seen that a large sum of money that has hitherto been de-

rived from the salutary occupation of the prisoners, will have to be raised by increased taxation. What is true of the Brooklyn Penitentiary in this connection is equally true of other penal institutions in the State of New York. We have dealt here only with the economic aspects of the question, as its other aspects have already been considered at considerable length.

RECENT PROGRESS IN MEDICINE.

SERUMTHERAPY AND LUMBAR PUNCTURE.

FOR one who reads European medical literature to any extent, it is not possible to resist the conviction that the serum mode of therapy is rapidly establishing itself as an enduring principle of wide application in therapeutics. During the past six months, all other forms of serumtherapy have been so overshadowed by the antitoxin treatment of diphtheria, that knowledge of them is much less universal than it otherwise would be.

The treatment of diseases produced by streptococci has been developed to a considerable extent on the European Continent, and particularly in France, where its introduction was due largely to the labors of Marmorek, Charrin, and Roger. In a case of hemorrhagic septicemia reported by Ballance and Abbott, in a recent number of the *British Medical Journal*, the infection was so severe that lymphangitis, adenitis, vomiting, chills, high temperature, scarlet, septic erythema, puffy face and eyes, and mental stupidity, were noticed within the first thirty-six hours after the infection. At the end of the second day, the patient's condition became alarming; the temperature was nearly 105°, pulse 150; rash, brilliant red and hemorrhagic, mental hebetude, vomiting, bleeding from the nose and pharynx, and slight albuminuria were present. Sixty hours after infection the first injection was given. Within six hours improvement set in, followed by rapid recovery.

The injections were made into the loin and abdominal wall, and after the first eight (of 3.5 c.cm. every four hours) had been given, the succeeding twenty were increased each to contain 7 c.cm. The writers suggest the possible use of the serum in fracture of the skull in which there is risk of suppurative meningitis, in acute necrosis, acute septicemia and pyemia, rapidly spreading gangrene

¹ October 12, 1895, p. 409; October 26, 1895, p. 473.

and cellulitis, erysipelas, general suppurative peritonitis, and in the septic complications of middle-ear disease. They believe that the proper way of administering it is to begin with moderately large doses, 20 c.cm., to give the injections frequently, and as soon as beneficial effects are manifest, to reduce the dose to about 7 c.cm.

The serum used was from the blood of asses. The ass receives during several months increasing injections of living virulent streptococci. The anti-streptococcic serum has therefore antimycotic rather than antitoxic powers. Tests applied to the serum after each injection showed a progressive increase of bactericidal properties. The fact that streptococci may remain in the blood of animals for several days after their infection, makes it imperative to remove all chance microbes by filtration through porcelain.

It is well known that the danger of death in scarlet fever is enhanced greatly by the suppurative complications that follow that disease. Baginsky of Berlin, has put Marmorek's serum to the test in fifty-seven children affected with scarlatina. He says that it is so antipathic to the complications of this disease that it reduces the mortality from thirty to forty per cent.

Josias (*Semaine Médicale*, May 20, 1896) has had a larger experience with the antistreptococcic serum in scarlet fever. He injected forty-nine children in the first period of the disease, each with 5 c.cm. of serum obtained from sheep. With the exception of slight urticaria, no bad symptoms resulted. He also injected ninety-six children with horse serum in the second stage, with an average quantity of 10 c.cm., but some of the patients received as high as 90 c.cm. Complications resulted in twenty-nine of these cases. The mortality in cases which used the sheep serum was only about one-half as great as in those in which no serum was used.

It must be remarked that the difference in mortality rates, which these writers speak of, may be accidental, for not infrequently much greater variations in the death-rate of epidemics of scarlet fever occur, even if the cases are allowed to take their course without particular treatment. If the serum treatment can be given without danger of any ulterior consequence, and

if there are grounds for belief that it may prevent the suppurative complications and sequelæ of this disease, it deserves the fullest trial. Apparently, the only word of warning necessary is that great care be used in the preparation of the serum.

The diagnostic value of lumbar puncture, or of puncture of the subarachnoid space in the lumbar region, is now universally conceded. Weichselbaum has described a special microorganism which occurs in pairs and quadruplets, lying with their broad sides opposed, not lanceolate, and situated chiefly within the cells. On account of its location the name of *Meningococcus intracellularis* was given to this organism. Weichselbaum claimed that it was the cause of meningitis. This claim was contested, but it is now known that the pneumococcus, which for a time was considered the causative element in meningitis, produces a purulent form of that disease, while the intracellular coccus of Weichselbaum is the cause of epidemic cerebrospinal meningitis. It is between these two forms of meningitis, particularly, that lumbar puncture may be utilized to make the diagnosis. If the fluid withdrawn contains the cocci of the one form or of the other, and if cultures made from it produce the respective diseases in susceptible animals, the diagnosis of the variety of meningitis will be made, and the prognosis confirmed, for in epidemic cerebrospinal meningitis, the prognosis is immeasurably better than in the purulent form.

Heubner (*Deut. med. Woch.*, July 2, 1896) was able, by means of an examination of fluid from the subarachnoid space, to establish just this distinction. The operation of tapping the subarachnoid space in the lumbar region is such a simple and inconsiderable one, that it is well perhaps to remember that in some conditions, such as tumor or abscess of the cerebellum, it is not unattended by real danger, not to speak of the aggravation of the symptoms which it causes.

JOSEPH COLLINS, M.D.

ECHOES AND NEWS.

Argon and Water.—Argon has been combined with water by Professor Villard, of the Paris École Normale, at a pressure of 200 atmospheres.

A New Disinfectant.—A gas, obtained by the partial combustion of methylated spirits, has been successfully

tried as a disinfectant by the Antwerp Medical Commission. It is non-toxic, and free from corrosive action, and is said to destroy all trace of bacteria.

The Recrudescence of St. Ronan's Well.—On September 10th, the pumproom at St. Ronan's will be opened. The access of ordinary spring-water had destroyed the prestige of this spa, familiar to all readers of Scott. There are two waters, a saline and a sulphur.

Longevity of Human Life Increasing.—A German statistician has calculated that of every 1000 persons, 100 reach the age of 75, 38 the age of 85, and only 2 reach 95. In the seventeenth century, the average duration of life was only 13 years, in the eighteenth, 20, in this century 36.

Milk Inspection in New York.—Milk Inspector Dockery of New York City, has just made his annual report, which shows that in nine months he has inspected no less than 3700 cows, and condemned 7300 gallons of milk. He is the first man in his office to enforce the regulations, and the result has been a marked decrease in infant mortality.

The Plague in Hong Kong.—The total number of cases of bubonic plague in Hong Kong from January 1st to July 20th, was 1158, of whom 1013 have died. Dr. Yersin, a French bacteriologist, claims to have discovered a serum which cures the disease and confers immunity against it.

Philadelphia Hospital.—A position as permanent resident physician at the Philadelphia Hospital is vacant, and is shortly to be filled. For the proper incumbent, the position is a most desirable one, offering large opportunities for a wide experience. A fair salary is paid, and board and residence in the Hospital are provided.

Carrier Pigeons in Medical Practice.—A doctor in the Highlands of Scotland, whose patients are scattered over a wide district, takes carrier pigeons with him on his rounds, and sends his prescriptions by them to the apothecary. He leaves pigeons, too, with distant families, to be let loose when his services are needed.

Formaldehyde in Consumption.—Dr. Francisque Crôte has been using gaseous inhalations of formaldehyde, assisted by the application of electricity to the chest, for aborting consumption. Out of about eight hundred cases, he claims to have successfully treated six hundred. A committee of the French Academy of Sciences has been appointed to examine and report upon the treatment.

Mississippi Valley Medical Association.—The program of the meeting of this Society in St. Paul, September 15th to 18th, promises a feast of good things, both scientific and social. The expedition to Yellowstone Park is a feature of unusual attractiveness, and offers an opportunity which will doubtless be improved by all who can afford the time.

The Consumption of Alcohol.—Frenchmen consume more alcohol than other Europeans, according to figures put before the Basel Congress for Alcoholism. In the computation the amount of alcohol in light wines and beer is

included. The average annual consumption of alcohol per head of population is 13 quarts in France, 10 in Switzerland, Belgium, and Italy, 9 in Germany and England, 4 in Sweden, 3 in Norway, and 2 in Canada.

Tannoform.—In *La Belgique Médicale* Drs. G. de Buch and L. de Moor describe the therapeutic effects of tannoform, which is precipitated from a solution of tannin in formaldehyde by adding hydrochloric acid. The authors have used it externally in the treatment of old indolent ulcers, and internally in infantile diarrhea. It is said to combine the astringent effects of tannin with the antiseptic and drying properties of formaldehyde.

Obituary.—Dr. Alexander Buchanan, a specialist in pulmonary diseases, died at his home in New York, of tuberculosis, contracted, it is believed, from his patients. He was born in Glasgow, and began his medical studies in New York, but graduated from the College of Physicians and Surgeons of Glasgow. He returned to the United States, and has since practised in New York. He was the author of a number of treatises on consumption and other pulmonary diseases.

Condemned Tenements Destroyed.—The work of the New York Board of Health in tearing down condemned tenements continues. They have now attacked the rookeries in Chinatown. In several cases the owners of the houses had informed Chinese tenants that the Health Board had no legal right to destroy the premises, so the coolies remained till axmen began their attack on rotten timbers, when they swarmed out like rats. This movement will be sure to arouse owners to the necessity of putting their houses in proper sanitary condition.

New York Almshouse Abuse.—The Commissioners of Public Charities for a week past have been investigating the condition of the people confined in the almshouse. Enough has been learned to justify the assertion by President Croft that fully twenty per cent. of the inmates on Blackwell's Island are improper charges upon the city. This means that between four and five hundred people possessing means themselves, or having friends able to support them, are living at the city's expense. One inmate died a few days ago leaving \$4000 in a savings bank.

Haffkine's Anti-cholera Serum.—Dr. Simpson, the health officer of Calcutta, who has been investigating the Haffkine cholera treatment for the past three years, has just issued his report. Among 654 uninoculated persons there were 71 deaths (about 11 per cent.), while among 402 inoculated persons in the same households there were 12 deaths, less than 3 per cent. Among 5000 coolies, working in the tea gardens in Cachar, 2000 have been inoculated. Fifteen of these were attacked by cholera and four died, but among the other 3000, 154 were attacked and 60 died.

Pasteur's Tomb.—The crypt under the principal entrance of the Rue Dutot Institute, which is to contain Pasteur's tomb, is rapidly approaching completion, and his remains will probably be transferred to it from Notre Dame on December 27th, the anniversary of his birth.

At the entrance of the vault is the following inscription in French: "Happy is he who carries within himself a God, an ideal of Beauty, and obeys it; an ideal of Science, an ideal of the virtues of the Gospel." In the carving of the interior are depicted the animals and vines that Pasteur rescued from disease.

Brooklyn's Water Supply.—For many years Brooklyn enjoyed a water supply of exceptional purity. The experience of the last year or two proves that this is no longer the case. As a matter of fact, Brooklyn has nearly exhausted the sources from which good water can be obtained on Long Island. Already it has been practically forbidden to draw any more from Suffolk County, and there are complaints in various neighborhoods that the local supply of water has been interfered with by the large draughts of the city. The question arises, where shall she go for a sufficient supply of pure water?

Montenegrins' Powerful Voices.—The Montenegrins are gifted with probably the most powerful voices in the world. The distance across which they can shout is extraordinary, and they are in the habit of carrying on ordinary conversations across a tract of country which the utmost shouting of an ordinary man could scarcely traverse. A few years ago, when a murder was committed near the Austrian frontier, the news was carried throughout the entire country, and the army was mobilized within a couple of hours, simply by shouting the news from cliff to cliff and from town to town, with the result that the murderers were quickly caught.

The Antagonism Between Chloroform and Hydrocyanic Acid.—Professor Hobday, in an article in the *Journal of Comparative Pathology and Therapeutics*, recounts a number of experiments made to determine the antagonism of hydrocyanic acid and chloroform. In the lower animals, chloroform kills by narcotizing the respiratory center, of which hydrocyanic acid is a very rapid excitant. In the first series of cases, in which respiration had ceased through the action of chloroform, Scheele's acid was injected subcutaneously, and artificial respiration resorted to. Professor Hobday is convinced that the use of the acid is a most important adjuvant in resuscitation. In the second series, the antidotal power of chloroform in prussic acid poisoning was shown.

The Cocain Habit in New Orleans.—A druggist of New Orleans, gives, in the *Picayune*, the following account of the use of cocain by the native darkies: "How on earth these ignorant people ever learned of the effects of this powerful and dangerous drug I am at a loss to say, but I know it as a fact that some drug stores in this city sell enormous quantities of the stuff to the darkies in five-cent packages. The demand for it is so great that they keep the stuff in little papers which they retail at five cents, and it is quite frequently the case that the darky doesn't even open his mouth to say what he wants, the trade is so well established. He simply goes into the drug store, throws down his nickel on the counter, and is given a cocain package without his ever opening his mouth—just as he would slouch into a beer-joint and get a glass of beer."

Such an abuse should receive the prompt attention of the Board of Health.

What is an Accident?—A physician of Essex county, New York, while driving between Hayne and Ticonderoga, was overcome by exhaustion arising from an injury sustained a year previous. He stopped his horse and proceeded to give himself a hypodermic of morphin. His horse started suddenly and the needle was driven further than he intended. Cellulitis ensued and he was disabled for twenty-two weeks. He brought suit against the Interstate Casualty Company, which had insured him "against bodily injuries sustained through external, violent, and accidental means." The presiding judge of the Circuit Court of Essex County dismissed the complaint. The Albany Court of Appeals, by a majority of three to two, decided that the jury should have been allowed to determine whether the injury was accidental or not. The court held that the injury could not be called accidental, if it was caused by the morphin or by the uncleanness of the needle.

The Nomenclature of Diseases.—The second decennial revision of the "Nomenclature of Diseases," embodying the most recent views on the nomenclature and classification of diseases, and prepared by a committee of the Royal College of Physicians of London, has been issued. Tetanus, actinomycosis, foot and mouth disease, pellagra, Hodgkin's disease, and diabetes insipidus appear in the list of the so-called general diseases for the first time. Tetanus is placed between septicemia and tuberculosis among diseases due to specific microorganisms. Rheumatic fever, despite the evidence in favor of its being a specific febrile disease, appears between pellagra and rheumatism and gout. Membranous croup is made synonymous with diphtheria. Puerperal fever has been expunged from the official nomenclature, and pyemia, septicemia, or sapremia in puerperal women, are to be described as puerperal pyemia, septicemia, and sapremia respectively. In the appendix, containing a list of vegetable parasites, the tubercle and anthrax bacillus are given as the cause of these diseases, but the diphtheria bacillus is described as occurring in the lesions of diphtheria, and the spirillum of Asiatic cholera as occurring in the intestinal epithelium and contents in cholera.

Greater New York Charter.—The sub-committee of the Greater New York Commission has prepared chapter 19 of the proposed charter, which provides for a Department of Health, under a Health Commissioner to be appointed by and removed at the will of the Mayor, with a term coextensive with that of the Mayor. The chapter provides that the department be divided into two bureaus; one under a "sanitary superintendent," who must be a physician, and the other under a "register of records," who, without fees, must record births, marriages, deaths, and inquests. The Health Commissioner has power to declare and abate all public nuisances. The proposed law practically embodies existing provisions relating to the registry and duties of plumbers, superintendence of improvements in and erection of buildings, the prevention of nuisances

from uncleanness, defective drainage, and the disposition of garbage and other waste. Vaccination is provided for, and authority is given to the department to close streets, forbid communication, and quarantine neighborhoods, as well as vessels and buildings. In tenements erected after June 16, 1897, all sleeping-rooms must have a window, at least twelve square feet in size, admitting light and air directly from the street or yard.

Enforcement of the Mercantile Establishments Law.—

This law, which regulates the employment of women and children in mercantile establishments in New York, went into effect September 1st of this year. Already the Board of Health has divided the city into inspection districts, and inspectors have begun the work of seeing that the law is enforced. The law contains the following provisions: "No male under sixteen years of age and no female under twenty-one years of age shall work more than sixty hours in any one week. No child under fourteen years of age shall be employed. A register shall be kept of the names, etc., of all employees under sixteen years of age, and no child under the age of sixteen years shall be employed without first obtaining a certificate from the Board of Health. Suitable and proper washrooms and water-closets are to be provided, and water-closets assigned to women and girls to be wholly separate and apart from those assigned to males. Suitable seats for female employees must be furnished. Basements where women and children are employed can be so occupied only after a permit for the same has been granted by the Board of Health. Forty-five minutes shall be allowed for the noonday meal in each establishment."

SPECIAL ARTICLE.

DISCUSSION OF THE TREATMENT OF HEMOPTYSIS.¹

THE subject was introduced by Charles E. Quimby, M.D., of New York, who spoke of the diversity of method used by various practitioners and teachers, and the great need of setting our approval on what is useful and, at the same time, condemning injurious measures.

Dr. Quimby said: Of the two causative factors, vascular tension and degenerative changes in the vessel walls, it is evident that the latter are not subject to modification within such time as will render them a basis for treatment of an existing hemorrhage. The possibilities of influencing the arrest of hemoptysis must, therefore, be sought in one or more of three universally accepted lines:

1. Modification of vascular tension.
2. Increase in the coagulability of the blood.
3. Mechanical and chemical aids to clot-formation.

In the first of these there has been the greatest apparent antagonism of methods. So long as we recognize a gangrene, due to the prolonged use of ergot, no one can well deny that extreme arterial constriction produces capillary anemia. But, all the vasoconstrictors produce systemic even more strongly than pulmonic contraction,

and the consequent increase of arterial tension must be transmitted back through the heart and pulmonary veins until it is felt in the capillary circulation of the lung. Even if this were not important, there would seem to be the greatest uncertainty of producing and maintaining the requisite degree of constriction to cause persistent capillary anemia, and anything short of that must increase the hemorrhage, for even involuntary muscles soon become exhausted and refuse to respond to the sharpest stimulation. Most serious of all appears to me the objection derived from the pathology of the disease. It is not questioned that mural degeneration of the bleeding vessels is the most important cause of the hemorrhage, yet it is in these vessels and those immediately adjacent, which also cannot be supposed to have escaped entirely degenerative changes, that muscular contraction is absolutely necessary. If but one of them is unable to respond to the stimulus of ergot, or to bear the increased strain, all arterial contraction becomes not only useless, but absolutely harmful. This argument, with certain clinical evidences that ergot quite as frequently augmented as retarded bronchial hemorrhage, led me, some eight years since, to abandon the vasoconstrictors and their ally, the ice-bag, which I had been taught to use, and to direct my arterial therapeutics to the development of low tension in the pulmonary circulation. This is accomplished by both active and passive measures. Since muscular action and mental anxiety are cardiac and vascular stimulants, complete rest, both physical and mental, is imperative, not only for its direct influence in quieting the heart's action, but also to increase the influences of other measures. Personally, I make no examination of the chest until the hemorrhage has ceased, as none of my therapeutic measures are influenced by the location of the trouble, it being understood, of course, that sufficient is known to differentiate a hemorrhage of phthisical from one of cardiac or other origin. An initial dose of some preparation of opium I regard as routine treatment in all cases, for not only is the general nervous excitement, so often the predominant cause of the vascular disturbance, controlled thereby, but rest of the affected lung is also secured through the coincident arrest of cough. In cases of profuse hemorrhage, however, probably less is gained by complete arrest of cough than is lost in the dangers incident to the retention within the lung of large amounts of blood. Morphin should here be used to modify, not to arrest the cough.

Active diminution of pulmonic vascular tension is most fully obtained by, first, general lowering of blood-pressure; second, diversion of the blood from the lung to other parts. To secure the former, my main reliance is upon aconite, which is given in a full initial dose, and repeated as required to maintain the desired vascular quietude. In cases which present the symptoms of shock from the onset, although often with rather a tense pulse, morphin alone, in small repeated doses, not only relieves the shock but lowers vascular tension and equalizes the circulation.

The blood may be diverted from the lung to the thoracic wall, the alimentary mucous membrane, and the abdominal glandular organs. To this end, in all except mild cases, I apply counter-irritation by means of turp-

¹ Meeting of the American Climatological Association at Lakewood, N. J., May 13, 1896.

tine stupes or mild mustard plasters, to the entire back and sides of the thorax, endeavoring so to temper them as to maintain a sharp capillary hyperemia, which is continued until all bleeding has been absent for some hours. In mild cases, a similar and sufficient derivation is more easily obtained by way of the alimentary canal alone.

Having seen some of the "old women's remedies" of my youth reappear in the garb of "modern scientific discoveries," I was led to a consideration of the use of salt, which has resulted in my using it constantly for hemoptysis, upon what I consider a truly scientific basis. Undoubtedly, a more pronounced and persistent effect is gained from the Epsom or Rochelle salts given to the point of free catharsis, but I am convinced that a primary hyperemia of the alimentary mucous membrane is developed more speedily by reflex action through the gustatory nerves from salt taken in the mouth, and that this hyperemia is sufficient to have a decided and valuable influence on pulmonary circulation. I supplement its action by the more powerful salines in the more severe cases. Since the action of salt is purely reflex through the nerves of taste, its value does not depend upon the amount taken, but upon its persistent use. In very obstinate cases the more stimulating or irritant cathartics may be given.

As regards the remedies used to increase the coagulability of the blood or to produce a local astringent effect, the possibility of their reaching a bleeding point in any efficient amount, always seemed to me so remote that I have never yet prescribed one of the astringents.

Astringent inhalations seem, *a priori*, more reasonable than internal astringents, and a most gratifying experience in the mechanical treatment of pulmonary disease has led to some attempts in rather severe cases of hemoptysis to develop atmospheric compression of the bronchial vessels by compelling the patient to expire through a restricted opening, as a pipe-stem, straw, or even the compressed lips. A sufficient number of cases have not been seen to justify any positive statements, and the measure is presented rather as a suggestion.

In presenting a summary of my own treatment of bronchial hemorrhage, no claim is made of anything new; but simply that it is based upon a well-defined principle, has a definite object in view, and that the measures form a harmonious whole. It includes: 1st, rest; 2d, morphin; 3d, aconite or other vascular sedative; 4th, dry salt and a saline cathartic; 5th, counter-irritation; 6th, obstructed expiration. It excludes: 1st, astringents; 2d, ice; 3d, stimulants; and 4th, the vaso-constrictors.

The following statements are the answers in substance of the several gentlemen to this question: "Will you state just what you would do if called to a case of moderate or severe hemoptysis, it being assumed that it is a bronchial hemorrhage, dependent upon tubercular disease of the lung?" It was understood that the answers do not include what might be done as a placebo for the patient and friends, nor indicate treatment in detail.

Dr. Delafield affirms these two broad propositions: (1) Such hemorrhages are never fatal, and are dangerous only through the succeeding extension of the tubercular process. (2) No therapeutic measure has any appre-

ciable effect in determining the arrest of the hemorrhage. He, therefore, limits his treatment to reassuring the patient and making him comfortable.

Dr. Draper follows a rather expectant plan of treatment in the milder cases, but when the hemorrhage is well defined in a case of definitely determined tuberculosis, his chief reliance is upon full and absolute rest in connection with opium, although he generally gives some ergot. When he has reason to believe that the hemorrhage is localized and forms a congested area about tuberculous deposit, he applies ice to the chest over the seat of hemorrhage. He never uses the mineral astringents.

Dr. Jacobi regards every bronchial hemorrhage in phthisis as presenting serious possibilities, having seen a primary hemorrhage prove fatal in a patient who had never presented any symptoms or been suspected of having any tubercular disease. He insists upon absolute rest, allows no talking, and makes only such examination of the chest as is necessary to determine the seat of the hemorrhage, which can be done by auscultation alone. He allows the patient but little fluid. In therapeutics, he relies mainly upon acetate of lead and opium, though he directs that digitalis be given at the outset, followed by injections of ergot from time to time. The lead he gives in divided doses, uniformly through the day, and thinks it has been condemned by others because used in too small doses. He states that an adult patient may take from two to four grams of acetate of lead in twenty-four hours, and continue the dose for from two to four days. The lead is given in combination with opium, amounting to daily doses of from one to four decigrams, the indications for the opium being the general quieting effect. The digitalis, on the other hand, he says, should be given in one or two large doses of from eight to ten minims of a good fluid-extract at the outset, and repeated in from six to eight hours. The ergot also is given in an initial full dose, and repeated as may be necessary to maintain arterial contraction. Externally, he applies ice over the seat of the hemorrhage, and ligates the lower extremities in severe cases to retard venous flow. In all cases the bowels are opened freely until the hemorrhage ceases.

Dr. Janeway insists upon absolute rest in all cases, not allowing any physical examination even, except auscultation, until at least four days after the hemorrhage has entirely ceased. Therapeutically, he employs opium, both for its influence on the general nervous excitement, and to quiet the cough when that is prominent. For a direct effect upon the hemorrhage itself, he regards atropin as preferable to ergot. He gives cathartics to obviate the constipating effects of the opium, and thus to avoid the dangers incident to straining at stool. When the pulse is frequent and strong and not quieted by the opium, he uses aconite. Externally, he applies the ice-bag or counter-irritation to the affected side, rather giving the preference, if any, to the counter-irritation. In case the hemorrhage is prolonged and not arrested by the above treatment, he resorts to inhalations of turpentine, with the proviso that they must be begun carefully, and at once stopped if they excite an irritative cough. He does not employ astringents, but if he did, acetate of lead would be the one chosen.

Dr. Kinnicutt gives absolutely nothing by the mouth. He ascribes the very greatest importance to rest, absolute and continuous, physical and mental. Recognizing not only the prominence of nervous excitement and mental shock, and their influence in producing vascular activity, but also the physical and local disturbance produced by cough, he employs morphin, hypodermically, to control the former and moderate the latter. He does not employ ice externally, except in the more severe cases. He has absolutely no faith in astringents or ergot.

Dr. Peabody similarly bases his treatment upon that complete rest, which is made possible and fully obtained by hypodermics of morphin. He lays rather more stress, however, upon the value of ice externally for its action in causing a reflex contraction of the pulmonary vessels, and constantly employs ligature of the extremities in all severe cases. Negatively, he condemns all astringents as absolutely bad, except acetate of lead, which is thought to have a slight value in cases of moderate and persistent oozing, but to be entirely worthless in severe hemorrhage. He also specifically opposes all inhalations.

Dr. A. A. Smith also regards absolute all-round rest as the *sine qua non* in the treatment of bronchial hemorrhage, and he pays special attention to relieving mental anxiety from fear, in addition to securing the usual physical quiet. His medication is begun by a hypodermic of morphin, which he specifically states is *not* to be combined with atropin, on account of the effect of the latter in stimulating the circulation. In addition, he uses bromid of sodium when there is great mental excitement. If the hemorrhage starts with a rise of temperature, he uses one of the coal-tar series, of which phenacetin is considered the best. They are intended to quiet an excited circulation, and their dosage is to be governed by this effect. He allows patients to continue the use of salt as a placebo, and is not displeased if it causes nausea, as that is attended by a diminished circulation. Dr. Smith makes special mention of continuing the opiate for several days. He also places his patients on a milk diet at once, and, after allowing them to get up slowly, still restricts their diet, forbidding for some time all red meats, stimulants, and stimulating food. He regards all the astringents as utterly worthless, and ergot and ice, externally, as equally bad.

Dr. A. H. Smith insists upon rest and opium as the basis of all treatment in pulmonary hemorrhage, making special mention of the dangers from percussion and an over-zealous physical examination. Morphin he uses for its quieting effect and to moderate cough. If the pulse is hard, tense, and small, or if the patient suffers from a sense of oppression in the chest, he uses nitro-glycerin. More commonly he gives ergot, which he regards as especially valuable when the pulse is soft and weak, and in cases of distinctly capillary hemorrhages, which are moderate but persistent. For the astringents he has no use.

Dr. William H. Thomson lays no great stress upon rest, unless the hemorrhage comes on with high temperature, or there is reason to believe that the bleeding was started by exercise or physical strain. He relies almost entirely upon acetanilid and atropin, which he gives about

every three hours, in doses of from three to four grains of the former combined with $\frac{1}{100}$ of a grain of the latter. In cases which give the history or present the physical evidences of an antecedent pleurisy, he straps that side of the chest firmly, believing that the tension from old fibrosis is often a prominent cause of these hemorrhages. He would insist also upon such quiet as would prevent strain of pleuritic adhesions. He does not employ the astringents or ergot, and makes no mention of any external applications or inhalations.

The treatment of bronchial hemorrhage, as deduced from these reports by a majority vote of eight to one, would be upon the general plan of vascular sedation with a lowered blood-pressure, and would include the use of: (1) Rest; (2) morphin; (3) vascular sedatives; (4) ice, perhaps (?) to which may be added in the same line, as having been mentioned without opposition; (5) saline cathartics; (6) ligation of the limbs; and (7) counter-irritation in place of ice. It would exclude the use of astringents or vaso-constrictors.

John H. Musser, M.D., of Philadelphia, made a report on the treatment of hemoptysis as practised by thirteen physicians of note in that city. The following is an analysis of the methods adopted:

1. *Rest*.—This, as was naturally expected, was enjoined by all. In nearly every instance it was urged that the rest should be in the recumbent posture. A number, however, urged that the patient should be in a semi-upright position, or the shoulders elevated. The internal use of opiates was advised by most of the writers, of the bromids by one person. The cough is to be controlled, and this is obtained by the use of opiates also.

2. *Local applications*.—Cold on the chest, in the form of ice usually, was advised by five of the reporters. In two of the five, its use was advocated in hemorrhages in the second or third stage of tuberculosis only. Most of them required the ice to be applied over the affected part.

3. *Diet*.—This was referred to by two only. One advised liquid diet, the other a readily digested but not low diet.

4. *Inhalations*.—The use of inhalations was objected to by three of the reporters, and advocated by one, who suggested that it must not be used if there is much cough.

5. *Dry cups*.—One of the reporters suggested drying-cup if there appeared to be congestion of the lungs.

6. *Internal remedies*.—The internal remedies advised may be divided into three classes: (1) Drugs to quiet the nervous system and allay the cough. (2) Drugs to allay arterial excitement. (3) Astringents. All enjoined the use of opium with the exception of two, both of whom, I think, overlooked its use. Morphin, however, was objected to by one very strongly. Professor Hare believes that the use of morphin causes more blood to be sent into the leaking blood-vessel of the lung, and advises the bromid of sodium in full doses by the rectum if it cannot be given by the mouth, and, if the pulse is strong, combined with chloral in doses of five or ten grains. Arterial sedatives were advised by two of the reporters. One thought well of the use of aconite in the hemorrhage of the early stage of phthisis, or of antipyrin in one or

two-grain doses with morphin. Another thought that cardiac sedatives were admissible when given in moderate doses for hemorrhage in either the first or second stage. By some, astringents were advised without qualification; by others, their use was admitted, although their value was doubted. Thus, one reporter says he uses ergot in early hemorrhages with grave doubt; another, that he uses ergot and gallic acid, but does not believe they are of much account. They are given, however, with the hope that they may be of service. The following are recommended: Ergot or ergotin by the mouth or hypodermically, turpentine, gallic acid, fluid extract of hydrastis, the oil of erigeron, acetate of lead, sulphuric acid, *Lycopus virginica*. Gallic acid is advocated by the majority of the reporters. Ergot is advocated by five. Its use is not mentioned by four, and two report against it absolutely, and two others consider it of doubtful use. Acetate of lead has two advocates, turpentine two, and the other astringents one each. One of the reporters considers turpentine the only hemostatic of any value; another thinks turpentine or terebene of greater service than any other drugs in the late hemorrhages of tuberculosis, particularly if combined with morphin and antipyrin. Common salt was advised by one of the reporters.

Most of the reporters agreed that the treatment was the same, whether hemorrhage took place in the first or later stages. One of them insisted on small doses of astringents in the first stage, and of large doses in the latter stages. Another insisted on the local use of ice in the latter stages only; another, that turpentine should be used at this period. One insisted that the recumbent posture should not be assumed when the hemorrhage took place late in phthisis, and that opium should not be given or the cough in any way allayed at this period of the disease, on account of the danger of the accumulation of blood in the air-cells. Apparently, from the above, no difference in the treatment of the two stages existed.

From this review it may be said that the treatment of hemoptysis, as followed out by representative practitioners in Philadelphia, includes rest, mental and physical, the local application of ice, the use of opium, and, with considerable doubt as to their value, the use of astringents of the class referred to in the above analysis.

Dr. Musser fully indorses the above in so far as rest, ice, and opiates are concerned; he is not willing to indorse the use of astringents. He would urge the use of dry cups in certain well-defined conditions, and favors the use of saline catharsis if the patient is robust, and the condition of the primæ viæ points to its necessity.

Algernon Coolidge, Jr., M.D., of Boston, reported the practice of eighteen physicians in Boston: Seventeen gave the preference to opium among drugs, ten preferring morphin as the best form of administering it. Three allowed codein as a substitute. Six used ergot as a routine measure, but of these, four doubted its usefulness. Eight found it useless, and two considered it positively harmful. Seven were opposed to high altitudes, while five considered high altitudes not contraindicated.

R. H. Babcock, M.D., reported the practice of twenty-seven physicians in Chicago. Of these, eighteen insist

upon absolute physical rest in recumbent or semi-recumbent positions, and three added that they permitted no talking. Cold to the chest is ordered by thirteen, usually in the form of ice. Nine administer opium, and eight morphin hypodermatically. Ergot is employed by fifteen, a few, however, stating some doubt as to its utility. One said he thought ergot only proved efficient when in doses sufficient to produce nausea. One administers Tancret's ergotin, hypodermatically, in doses of from six to eight minims, and mentioned no other treatment. Eleven are positive that ergot has no efficacy. Six make use of acetate of lead, either with or without opium; two tannic acid, two gallic acid, one dilute, and another aromatic sulphuric acid. Six prescribed ipecac, five the syrup, and one the powder in an emetic dose, after the manner of Trousseau. Four gave aconite, and two *Veratrum viride*. Salt is recommended by seven, one of whom relies largely upon it. Four advise mild laxatives, but do not specify the particular laxative employed, except the advocate of salt, quoted above, who recommends phosphate of soda. One only employs sprays to the larynx and trachea of solutions of iron, liquor ferri subsulphatis, ten to twenty minims to the ounce, or the tincture of the chlorid of iron, from twenty to thirty minims to the ounce of water, repeated three or four times daily. One uses phenacetin internally, depending upon the cause of the hemorrhage, and after the attack, rest, light diet, and tincture of iron internally. Two speak of employing ligatures to the extremities close to the trunk during the attack, one specifying constrictions of the lower extremities to prevent the return-flow of blood to the lungs. With one, hemoptysis ceased twice after atropin, hypodermatically, had produced dryness of the mouth. The advisability of light unstimulating diet, was dwelt upon by three.

Dr. Babcock relies on the use of phosphate of codein, hypodermically, or by the mouth, to quiet the cough; syrup of ipecac to the degree of nausea; Hunjadi or Rubinat water to open the bowels. He employs a hypodermic injection of one-fiftieth or even one-twenty-fifth of a grain of atropia sulphate to stop hemorrhage.

Dr. S. E. Solly, of Colorado Springs, said: Hemorrhage from large vessels and large cavities is relatively more frequent in Colorado than elsewhere, though the general tendency of altitude, through lowering blood-pressure, is undoubtedly to diminish the frequency of hemorrhages, and this belief clinical statistics confirm.

The first great danger in profuse hemorrhage from a large vessel is the drowning out of the patient by the blood, and it is advisable to turn him in such a position that the blood can flow readily out of the mouth; the plan of laying him on his back in bed is the worst possible position when he is freely bleeding.

The application of ice to the heart seems to quiet the organ, and thus assist in checking the hemorrhage. I am skeptical about the value of astringents, such as tannic and gallic acids, nor have I been satisfied with the use of large doses of lead, as recommended by Williams.

My clinical experience has been favorable to the use of ergot in large doses, given subcutaneously, at intervals of from four to six hours in the twenty-four. I believe a

common cause of failure with ergot is its irregular and insufficient use and administration by the mouth. There are, however, cases in which ergot is absolutely useless.

I also regard atropin as an extremely valuable remedy in serious cases, particularly in those in which ergot has proved a failure. But it must be given, hypodermically, in large doses, such as the one-fiftieth of a grain. A small dose of atropin is not beneficial. Thus morphin is best given without the usual one-fiftieth of atropin. It is stated that atropin in small doses raises the blood-pressure, while in large doses it lowers it. The reason that atropin is often successful in cases in which ergot is a failure, may be because in certain conditions lowering the blood-pressure, as by large doses of atropin, is essential to success, though in certain other conditions, raising the pressure is no detriment, or not sufficient to offset the other beneficial qualities of ergot.

Opium in some form should always be given, as well as other suitable remedies, when it is desired to arrest the hemorrhage and check cough. But there are cases of congestion in which it is unwise to do this.

Dr. W. D. Robinson, of Philadelphia: I have used calcium chlorid with success, and find that given between the bleedings, it is of advantage.

Another agent that I use is morphin, given to the degree of profound narcosis. I have given one-eighth of a grain once in forty minutes, until the patient is deeply under its effect. By stopping cough and local irritation we put the parts in splints, as it were, until firm healing of the bleeding point obtains. The morphin in full doses, by which the patient is kept practically in unbroken, sound slumber for from eighteen to twenty-four hours, is especially efficient in cases of frequent recurrent bleeding. The drug that I have found most prompt and efficient in stopping a hemorrhage, has been the hydrochlorate of hydrastinin in one-fourth grain hourly doses, hypodermically.

Dr. Boardman Reed, of Atlantic City: Regarding the use of ergot in these cases, I have not found it of any value, and have even thought that in some cases the results were positively harmful by contracting the arterioles throughout the body generally, and thus raising the blood-pressure. The mineral astringents have done good service in my hands, especially the aromatic sulphuric acid and gallic acid. There can be no doubt that these drugs increase the coagulability of the blood and thus assist directly in lessening the tendency to hemorrhage.

Dr. R. C. Newton, of Montclair: I wish to say that bromid of potassium fills the indications in many of these cases, especially when used in conjunction with Dover's powders and an ice-bag to the chest. Each case must, of course, be managed according to the surroundings and the indications. Dr. Babcock's suggestion of large doses of atropin, hypodermically, is a very good one.

Dr. Jas. B. Walker, of Philadelphia: I am glad to hear Dr. Fisk speak of oil of erigeron. I have long depended upon its congener, oil of turpentine, in hemorrhages from mucous membranes, and am surprised at the few references to its use in text-book and journal articles. In hemoptysis, it is of special service, and this is not sur-

prising when its hemostatic properties are so well known, and its appearance in the expired air a few minutes after its administration by the mouth, shows how quickly it reaches the scene of action. I usually administer it in five-minim capsules (sealed) every four to six hours. The use of the terebinthines in hemorrhage was vaunted by John Hunter, he claiming that it was the only true styptic.

SOCIETY PROCEEDINGS.

THE NORTHWESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK.

Stated Meeting, April 22, 1896.

The President, HENRY LING TAYLOR, M.D., was in the chair.

J. H. FRUITNIGHT, M.D., read a paper on

THE IMPORTANCE OF EARLY TREATMENT IN INFLAMMATION OF THE MIDDLE EAR.

(See page 289.)

DISCUSSION.

DR. E. S. PECK said that he had, during the past winter, seen more cases of the kind considered in the paper than ever before. A simple catarrhal otitis is easily handled; but when it becomes purulent, and is otitis of the tympanum attic, or roof of the middle ear, it is in a region which calls for special skill. He had seen the drumhead burst in thirty-six hours in a child who had a simple otitis, with very little pain and no temperature whatever. It is just here that a puncture of the drumhead is of great value. The puncture is easily made in the lower anterior quadrant of the drumhead, where it is least sensitive. The cavity of the middle ear, in a child, will contain perhaps not more than one or two drops, and in an adult not more than three or four. It is a simple matter to puncture the drumhead. The wound made by the knife will very readily heal. The tympanum attic is so thin that, in a young child, where the bone is not formed, it is easy to get basilar meningitis.

A life insurance company had recently asked him about the mortality from chronic otorrhea. From the best statistics he was able to get, there was one death in eight hundred cases of otorrhea over the age of twelve. When a chronic otorrhea has been purulent, and is accompanied with a green discharge, meaning the death of the bone, or a bloody discharge, the condition renders the patient a poor insurance risk; but if it is a manageable case of otorrhea, the man can be put on a better basis. In regard to the treatment, he used twenty or twenty-four grains of boracic acid to the ounce. He firmly believed in leeches, if they were properly used. The abstraction of two ounces of blood from the mastoid does a good deal for the relief of the congestion of the vessels of the middle ear. As to poultices, he preferred dry bran or calomel. He had used hot water several times a day for weeks in succession, but to control pain it is objectionable.

DR. S. BARUCH said he hoped Dr. Fruitnight would enlighten the members upon the early diagnosis of these cases. He had made it a practice in cases of measles

and scarlet fever to pull the baby's ears and to press around the mastoid process to ascertain if there was any tenderness there, and in that way had frequently discovered otitis, even before any symptoms were pronounced. He had not found powder so very objectionable in chronic cases.

DR. T. H. BURCHARD recalled a case of suppurative cellulitis just back of the external ear, in the space between the external ear and the mastoid process. A small abscess formed, and the pus had burrowed down into the tissue of the neck. As it did not yield to the ordinary methods of treatment, the consultant, thinking it was suppuration in the middle ear, proceeded to incise that, without giving the slightest relief. Dr. Noyes was called in, and an incision was made between the mastoid process and the external ear, evacuating half an ounce of pus, with absolute relief to the patient. He asked Dr. Peck whether a diagnosis of these cases in which the suppurative inflammation was outside the ear, but in the vicinity thereof, was not apt to be difficult.

DR. PECK replied that such cases were uncommon. It is not difficult to tell whether the trouble is internal or external. If it is external it goes away quickly—in from three to five days—if internal it is a matter of months.

DR. J. BLAKE WHITE considered powders harmful and dangerous. He had also known cases where middle-ear disease was caused by solutions forcibly drawn into the head for catarrhal affections within the nasal tract.

DR. S. H. DESSAU said he would not use powders to treat cases of acute otitis media, but had used them for the last fifteen years in the treatment of otorrhea, in children and adults. Dr. Burnett of Philadelphia had recently popularized the use of powders in the treatment of otorrhea, using boracic acid which has been saturated with a tincture of calendula or marigold. He uses it in the treatment of otitis media after the drum membrane has been incised or is ruptured.

DR. JOSEPH COLLINS said that students should be taught to remember that four conditions are especially likely to follow disease of the middle ear—leptomeningitis, sinus thrombosis, brain abscess, and disease of the mastoid as an entity. These conditions occur after measles, scarlet fever, and such troubles because of the anatomical conditions existing between the pharynx, the ear, and the Eustachian tube. The infrequency of death from otitis media purulenta is recognized, but an entirely different statement must be made as to the outcome of the sequelae, such as brain abscess, and the other conditions mentioned. A sero-purulent discharge from the ear, particularly in children, is quite as dangerous as a decidedly purulent one. In children the portions of the temporal bone are not united. The facility with which pathological products can be transported into the surrounding tissue is marvelous. If you have an ordinary serous discharge, with no microorganisms in it, the slightest change by which pathological microorganisms may go up into the middle ear, may make of that a dangerous condition. Therefore, no matter what the discharge is, or how slight, the necessity for treatment is urgent.

DR. WOODS HUTCHINSON (Professor of Comparative Pathology in the University of Buffalo) said that the dis-

ease is almost unknown in any of the graminivora, and almost unheard of among any of the domestic animals, other than the dog or pig. In the carnivora, particularly the dog, the mastoid is well developed, and mastoid disease and inflammation of the middle ear are quite frequent. The middle ear is a remnant of the gill-slit, the Eustachian tube and the outer ear forming the outer part. The disease has a tendency first to escape to the Eustachian tube, failing that, to prefer the dermoid and escape through the gill-slit, and that failing, it may force its way back into the respiratory passage and into the mastoid, and even there its pathway of least resistance is outward, toward the surface. The pus in the middle ear has to burrow its way in the direction of greatest resistance before it can make these dangerous attacks.

DR. BIESER said that a knowledge of the dangerous sequelae which may follow emphasize the importance of the early recognition of inflammation of the middle ear. When the almost tissue-like thinness of the roof of the tympanum is considered, it is not surprising that occasionally abscess of the brain, or meningitis, or thrombosis of the venous sinus, or mastoid disease follows. He lately had a case in which a child had been suffering from chronic otorrhea. The physician told the mother that it came from the teeth and was all right, and would take care of itself. It did take care of itself. The discharge suddenly ceased, and when he saw the child it was a full-fledged case of meningitis. May not an explanation of external cellular otitis lie in the formation of a fissure which leads from the external auditory canal?

DR. SPENCE said that he did not believe that the general practitioner is alone to blame for some of these ills following middle otitis. Only two months ago he had a case of abscess of the brain, where the woman had had an otitis and consulted a specialist, who told her to keep her ear clean, and that was enough.

DR. BARUCH, JR., said that he had seen fifteen cases of acute mastoid disease operated on, and each one of them, of course, had been preceded by a long, chronic otitis media. Five of them died from abscess of the brain, having come in too late to be operated upon.

DR. FRUITNIGHT said that the cases reported still more emphasized the importance of early treatment. Most of his cases had been patients under sixteen years of age. As to diagnosis, it has been his practice in cases of infectious diseases, or even of catarrhal or mucous symptoms, to discover any trouble by pressing the mastoid process, and under the left lobe of the ear, to see whether the child winces; and also by ocular inspection, to see whether there is any swelling in the canal. He thought that the physician should insist upon treatment whether he has been called in for that particular thing or not.

PRESENTATION OF SPECIMENS.

DR. WHITE exhibited a specimen and reported a case of appendicitis in a boy seventeen years old, who complained of severe headache, weakness, and lassitude. On the 7th of April he came to the speaker with a high fever, and complained of considerable pain in the right iliac region. On the 11th his temperature was 105 $\frac{1}{4}$ ° and pulse

120. He complained of nausea and vomiting. He had several chills, and all the symptoms pointed to appendicitis. The operation showed a catarrhal appendicitis, with no suppuration at all.

DR. GROWER presented a specimen and reported the case of a young man twenty-four years of age, who came into the office of Dr. Millbank, saying that he had heart trouble. On examination, there was found to be a distinct dilatation, enlarged heart, and an impulse at the fifth or sixth intercostal space on the right side. A hypodermic of strychnin was given, and the patient went home; about two hours after he died. Upon autopsy, an aneurism about the size of a large walnut, which had ruptured into the right pleural cavity, was found. There was an enlarged heart. The interesting point is the existence of a condition of this sort in a young man twenty-four years of age, with no history of syphilis. Most of these aneurisms that occur at so early a period are due to syphilis. Fraenkel has reported nineteen cases, in which nine had a distinct history of syphilis.

DR. GROWER also presented a specimen showing tuberculous ulcerations in the intestine of a child twelve years of age.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, June 10, 1896.

WM. M. WELCH, M.D., and the second vice-president, THOS. J. MAYS, M.D., were in the chair.

B. MEADE BOLTON, M. D., read a paper entitled

THE EXAMINATION OF CULTURES FROM CASES OF SUSPECTED DIPHTHERIA.

He stated that from May 30, 1895, until January 1, 1896, there were examined by the Bacteriological Division of the Philadelphia Board of Health, 1421 primary cultures and 1942 secondary cultures, a total of 3363 examinations. Of the first, 1207 were made from the throats of persons presenting clinical evidence of diphtheria, and 214 from the throats of healthy persons, who had been exposed to infection. The diagnosis of diphtheria was made by the attending physician in 557 cases; in the remainder the physician either stated that the case was not diphtheria, or left the diagnosis in doubt. In the 557 cases diagnosed as diphtheria, bacteriologic examination showed the presence of diphtheria bacilli in 507, or 90.2 per cent. In 148 cases the physician stated that the disease was not diphtheria. The Klebs-Loeffler bacillus was found in 40 of these, or 27.1 per cent. Cultures taken from the throats of 214 persons exposed to diphtheria, but presenting no clinical symptoms of that disease, showed the presence of Klebs-Loeffler bacilli in 89, or 41.5 per cent.; 95, or 44.3 per cent., did not show the bacillus; and in the remainder the result of the examination was unsatisfactory. In 50 of these cases it was possible to determine that the bacillus persisted, on the average, for 13.3 days. In 460 cases presenting clinical symptoms, the length of time that the bacilli were present, dating from the appearance of the first symptom to the disappearance of the bacilli, varied from 7 to 96 days, the average being 28.3 days.

DR. A. A. ESHNER said that it must be a matter for

gratification that there should be so close an accord between the clinical and the bacteriologic diagnosis. The diagnosis of diphtheria is attended with certain obvious difficulties, inasmuch as there are a number of affections characterized by involvement of the nose and throat—tonsils, pharynx, larynx—presenting clinical manifestations closely simulating those of diphtheria locally, but differing in virulence and lacking the profound constitutional intoxication. It is likely that many of these affections are infectious, that is transmissible, but differ from diphtheria etiologically. They may be designated diphtheroid, as resembling diphtheria but not dependent on the Klebs-Loeffler bacillus. It is to be borne in mind that the absence of the bacillus is not necessarily evidence that the disease is not diphtheria; the microorganisms may have been present and have disappeared, perhaps appearing in some secondary lesion. Besides, failure to find the organisms is not conclusive evidence of its absence. On the other hand, the bacillus may be present and the symptoms be so mild as to obscure the recognition of the disease. It is exceedingly important to appreciate the length of time—sometimes weeks—that the diphtheria bacillus may remain in the throat or nose and still retain its virulence. So-called pseudo-diphtheria bacilli are probably diphtheria bacilli that have lost some of their pathogenic activity.

DR. BOLTON added that investigation had shown that in the various anginae but two microorganisms of etiologic significance are always found—the diphtheria bacillus and the streptococcus. According to this view the statistics cited show that ninety per cent. of cases presenting clinical symptoms of diphtheria are due to the diphtheria bacillus, and ten per cent. to the streptococcus. It has been pretty well proven that so-called pseudo-diphtheria bacilli are really attenuated diphtheria bacilli.

EDWARD JACKSON, M.D., read a paper entitled

THE PROFESSION, THE OPTICIANS, AND THE PUBLIC.

He pointed out that the use of correcting glasses is still extending, even where it is now most common; and their more accurate adjustment to the needs of the wearer is likely to enlarge their use still farther. The employment of the eyes for the seeing of minute objects at short distances becomes more general and more constant; and the need for glasses will continue and extend until there occurs some important change in the direction of our social development. Who shall measure the eye for glasses? is then a question of some importance. No doubt it will ultimately be done by those who can do it best and do it cheapest, and only long experience will demonstrate who these will be. In Dr. Jackson's opinion it will be done by a class of practitioners familiar with the general principles of medicine and surgery, and experts as to the diseases of the eye, and specially trained in the methods of measuring refraction and conditions of ocular muscular balance. In addition to the special skill required in the correction of optical defects, another reason why this work should be done by a special class of professional men is, that it requires time, thoroughness and exactness. The benefit derived from a pair of glasses is not proportionate to their approach to accuracy of correction; for often no

benefit whatever will be experienced until the approach to accuracy is really very close. Thus it is that the best service in this matter is the only kind of tolerable service; and if it is rendered by the refracting optician rather than by a medical man, the former must make an adequate charge for his time, or else retire from the business. The proper relation of the optician to the prescriber of glasses, and to the public, is closely similar to that of the apothecary, and both sets of relations are liable to certain abuses, such as bribes in the form of percentages for patronage. The remedy consists in that portion of the medical profession doing the special work giving better and cheaper service, and putting itself in communication with those who need such service. One reason why people patronize opticians is to be found in the fact that some doctors do not give the necessary time and attention to the subject of refraction.

DR. WM. THOMSON said that his experience justified what had been said in regard to the need of accuracy and care, and also, that no man could do excellent refraction work unless he had the temperament and a certain kind of fitness for it. The ophthalmologist cannot consider himself a mere specialist, but must keep well equipped in all that pertains to general medicine.

DR. L. J. LAUTENBACH contended that the remuneration of the oculist should be measured by the amount of time required in the management of the individual case.

DR. T. B. SCHNEIDEMAN pointed out that the correction of refractive errors implies also an inquiry into the condition of the fundus, the optic nerve, the retina, the choroid, the media, etc.

E. LAPLACE, M.D., read a paper on

THE SURGICAL TREATMENT OF INSANITY.

He pointed out that while surgical intervention must not be resorted to in every case of insanity, certain cases are dependent upon removable causes. In illustration he reported four cases in which recovery followed operation. The first occurred in a man, thirty-four years old, who, following a blow upon the head with a brick, suffered from severe headache, and subsequently presented symptoms of insanity. Symptoms suggestive of syphilis also were present. Upon removal of a button of bone from the site of previous injury the dura was found adherent to the bone. The opening was enlarged and the adhesions freed. The patient was also placed on antisyphilitic treatment, and at once improved and continued thereafter in good health. The second case occurred in a woman, fifty-four years old, who, following a blow upon the head with a fist, became violently insane. On trephining at the site of injury the bone was found greatly thickened, and four ounces of serosanguinolent fluid escaped. The dura was greatly congested. Within a week reason was entirely restored, in two weeks more the woman was dismissed, and six months after the operation was absolutely well. The third case was in a man, twenty-six years old, suffering from melancholia. A strip of bone, one-quarter inch wide, was removed from the left temporal region corresponding to the coronal suture. The last case occurred in a laborer, forty-five years old, who suffered from delusions of persecution, together with severe headache. A portion

of skull was removed from the site of greatest pain and the adherent dura freed. In a short while both headache and mental symptoms disappeared. The following conclusions were submitted: (1) Traumatic insanity is dependent upon an appreciable pathologic condition incident to the traumatism and interfering materially with intellectual function. (2) Idiopathic insanity is dependent upon an, as yet, inappreciable alteration of the brain-substance interfering with intellectual function. (3) The relief of pressure by trephining and extensive craniectomy is a harmless procedure. It is a most valuable adjuvant to promote, with the aid of suitable medication, the absorption of deep exudates, and the drainage of fluids from the cranial cavity, which would otherwise be retained and act as irritants.

DR. A. J. DOWNES related the case of a young woman, presenting symptoms of melancholia, who had a scar upon the head corresponding to the site of a previous injury. A trephine opening in this situation disclosed evidences of an old blood-clot, which were removed so far as possible. She recovered from her aberration and in a subsequent attack of typhoid fever was entirely free from delirium.

DR. CHALMERS DA COSTA related that at a time when he was a resident physician in a hospital for the insane, he was impressed with the suddenness with which acute insanities are at times capable of disappearing. He referred to a number of cases in which mental symptoms disappeared following traumatisms and operations upon remote parts of the body. He pointed out that some of the lesions found are not causative of, but secondary to, the insanity. Trephining is justified in cases of insanity only when there is a distinct history of head-injury, or evidence thereof, with persistent localized headache.

DR. J. M. BARTON related a case of insanity in which the mental symptoms disappeared after the removal of a portion of diseased tibia.

J. P. CROZER GRIFFITH reported

A CASE OF VARICELLA GANGRENOSA, DIPHTHERIA, RUBEOLA, AND VARICELLA, OCCURRING AT THE SAME TIME.

The patient was a child, twenty-two months old, whose father was just convalescing from an attack of pneumonia, and looked tuberculous. For five days there had been painful cough, with fever, and rapid and labored respiration, and physical examination disclosed evidences of croupous pneumonia. For several days the symptoms progressed and indications of meningitis made their appearance. The attack had been a severe one and had threatened to be fatal. Resolution, however, finally ensued, and the child entered upon convalescence. After the lapse of more than a week follicular tonsillitis developed, and, upon bacterioscopic examination, proved to be diphtheritic. A few days later the rash of measles appeared, and after a few days more that of varicella. Both of the latter diseases were prevalent in the hospital at the time. The vesicles present underwent enlargement to the size of bullae, which burst, leaving erythematous areas varying in size from a split pea to a quarter of a dollar. In these ulceration took place, with the discharge of ichor-

ous pus, and over the ulcers crusts formed. At first the trunk and arms were principally affected, but later the head and the legs were also involved. Amid symptoms of heart failure death took place apparently from bronchopneumonia. The most significant feature of the *post-mortem* examination was the presence of diphtheritic membrane in the trachea, with none in the larynx.

DR. F. WOODBURY asked if there were any possible connection between the cutaneous eruption and any drug that had been administered. He referred to a case in a child, in which a vesicular or bullous eruption repeatedly followed the administration of small doses of potassium iodid.

DR. J. A. CANTRELL expressed regret that the name varicella gangrenosa had not been dropped, as a similar cutaneous exanthem may attend other conditions.

DR. W. M. WELCH adverted to the rarity of varicella gangrenosa, and spoke of its occurrence especially in children broken down in health.

DR. W. B. ATKINSON referred to an epidemic which, as a representative of the State Board of Health, he had diagnosed as one of variola, while the local physicians insisted that the disorder was varicella gangrenosa.

DR. J. F. SCHAMBERG suggested that so-called varicella gangrenosa might be merely the dermic manifestation of a systemic intoxication, such as may appear in connection with any infectious disease.

REVIEWS.

DEFORMITIES. A treatise on Orthopedic Surgery intended for practitioners and advanced students. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng., etc., etc., illustrated with 15 plates and 302 figures, of which 200 are original, and with notes of 100 cases. Pp. 598. Publishers: The Macmillan Co., 66 Fifth avenue, New York.

IN his preface the author states that orthopedic practice in England does not include all phases of disease of the bones and joints, "on what grounds it is difficult to understand," and, as the title indicates, the scope of the work is limited to actual deformity. The omission of tuberculous diseases of the joints from consideration must impair its value as a text-book in this country, where the prevention of deformity has become of such importance in orthopedic work. Tuberculous disease of the spine is considered at length; preliminary recumbency is the routine practice, while jackets of plaster or felt, fulfil all needful requirements of ambulatory treatment. A Taylor brace of a pattern of thirty years ago is figured, and Erickson is quoted as saying that, while it is of value in advanced deformity, yet its leverage power is so great that it may be a source of inconvenience or danger in early cases; the writer is evidently not familiar with its use. Good results from the expectant treatment of abscesses are unusual, although this may receive a trial in favorable cases; aspiration, simple or combined with injections of anti-tuberculous remedies, is not advised. Psoas and lumbar abscesses should be treated as a rule by the radical methods of Treeves and Barker.

Curvatures of the spine receive full consideration; the treatment recommended is constitutional, postural, and by exercise. Braces are advised in early cases accompanied by much muscular weakness, and in a stage of marked deformity when pain is a symptom. With treatment of forcible correction the author has had no experience.

The various contractions and bodily deformities, some of which are not often mentioned in similar works, are ably considered. The subject of clubfoot occupies one-quarter of the entire volume.

The writer is in favor of gradual correction of deformity by tenotomy and braces, even in advanced cases, but other methods are fully described.

Although the absence of the confusing variety of the illustrations of braces that often fill the pages of similar works, is not to be regretted, yet if the methods of manufacture and application of those braces used and recommended by the writer had been more clearly described, the practical value of the book to the practitioner unfamiliar with the details of orthopedic treatment, might have been increased.

The book is well written; the principles of treatment are well presented; it shows wide reading on the part of author, and the numerous quotations from American sources give it an air of familiarity unusual in an English book.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 24, 1896, TO AUGUST 17, 1896.

So much of S. O. 69 A. Go. March 23, 1896, as directs First Lieutenant Benjamin Brooke, Assistant Surgeon, to report to the President of the Examining Board, appointed to meet at San Francisco, Cal., April 14, 1896, for examination by the Board, is revoked.

First Lieutenant Henry A. Shaw, Assistant Surgeon, will proceed to Fort Brady, Mich., without delay, and report for temporary duty at that post.

Lieutenant Colonel Alfred A. Woodhull, Deputy Surgeon General, and Major Charles Smart, Surgeon, are detailed to represent the Medical Department of the Army at the twenty-fourth annual meeting of the American Public Health Association, to be held at Buffalo, N. Y., September 15, 1896.

A board of medical officers to consist of Colonel Dallas Bach, Assistant Surgeon General, Lieut.-Colonel William H. Forwood, Deputy Surgeon General, Lieut.-Colonel David L. Huntington, Deputy Surgeon General, Major Walter Reed, Surgeon, Captain Charles M. Gandy, Assistant Surgeon, is constituted to meet at the Army Medical Museum Building on Wednesday, September 23, 1896, at 10 o'clock A.M., for examination of candidates for admission to the Medical Corps of the Army.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING AUGUST 29, 1896.

August 24th.—Medical Director DAVID KINDLEBERGER placed on the retired list September 2d.

Assistant Surgeon H. LA MOTTE ordered to the naval hospital at Norfolk.

Surgeon C. BIDDLE detached from the "Monongahela" and placed on waiting orders.

August 26th.—Medical Inspector J. C. WISE, Surgeons J. C. BYRNES and C. BIDDLE, ordered as a board to convene at Annapolis, September 3d, to examine candidates for admission to the Naval Academy.